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Executive Summary

Does addiction treatment work?, If so, how do we know? In what ways is addiction treatment effective? How can the effectiveness of treatment be measured? What factors influence treatment effectiveness? These are common questions among the general public, policy makers, decision makers, and even addiction treatment professionals.

A substantial body of research substantiates the effectiveness of addiction treatment. This document presents an overview of much of that literature. Although not a review of every area of addiction treatment, it does analyze several critical areas of addiction treatment research, especially areas that are important to health care decision. and policy-makers.

This document describes specific treatment approaches, treatment settings, and treatment components and services and provides an analysis of the effectiveness of each. It includes abstracts of representative research studies used to support treatment effectiveness. It was prepared by conducting comprehensive literature searches, reviewing **meta-analyses,** examining literature reviews, and reviewing several hundred research articles.

Overview of Addiction and Treatment

Addiction is a progressive, chronic, primary, relapsing disorder. It generally involves the compulsion, loss of control, and continued use of alcohol and other drugs **(AODs)** despite adverse consequences. Addiction, treatment, recovery, and relapse are all dynamic ***biopsychosocial*** processes. That is, they are processes influenced by biological and medical factors, psychological and emotional factors, and social and environmental factors. In turn, these factors are influenced by addiction, treatment, recovery, and relapse.

The primary goal of addiction treatment is to meet the treatment needs of patients. These needs are biological, psychological, and social in nature. Accordingly, the effectiveness of treatment can be measured in terms of the overall biopsychosocial health of patients. This includes such factors as decreases in **AOD** use, improvements in medical and physical health, improvements in psychosocial functioning, greater employment stability, decreases in criminal justice system involvement, and relapse prevention preparedness.

Treatment Approaches

Addiction treatment can be described in terms of *treatment approach-a* treatment intervention based on a specific philosophical approach. The primary approaches are (1) methadone maintenance treatment, (2) therapeutic community treatment, **(3)** "traditional" chemical dependency treatment, and **(4)** outpatient **"drug**-free" nonmethadone treatment.

- *Methadone maintenance treatment* entails the substitution of heroin with a medically safe, **long**-acting medication of known purity, potency, and quantity, taken orally once daily. The medication is combined with biopsychosocial treatment services. Methadone maintenance treatment is the most studied of all addiction treatment approaches. It is associated with decreases in illicit opioid use, reductions in criminal activity, improvements in social health and productivity, improvements in overall health, retention in addiction treatment, reductions in needle sharing, and reductions in HIV infection and transmission rates.

- The *therapeutic community* approach generally involves participation in a long-term, intensive program that focuses on the holistic rehabilitation or habilitation of the addicted person. Provided in residential and outpatient settings, this approach involves highly structured blends of resocialization, milieu therapy, behavioral modification, and education. Treatment involves progression through a hierarchy of occupational training and responsibility and community reentry. Participation in therapeutic communities-of which there are several models-is related to decreased illicit drug use, decreased criminal activity, and increases in socially and economically productive behavior.

- *"Traditional" chemical dependency treatment,* often called the "Minnesota Model," generally involves medically supervised detoxification in combination with a range of biopsychosocial treatment services. This approach emphasizes addiction as a disease and encourages participation in a 12-Step program. It is associated with decreased AOD use and improvements in vocational well-being, psychosocial functioning, and medical-legal status.

- *Outpatient "drug-free" nonmethadone treatment* is represented by a diverse and eclectic assortment of program models that typically emphasize individual and group counseling and training in social skills. The focus of treatment is often on circumstances that support AOD use. This approach is generally associated with improved behavior and biopsychosocial health during and following treatment. Research regarding this approach, however, is somewhat dated and limited.

Treatment Settings and Treatment Effectiveness

While each of the four treatment approaches described above reflects a specific philosophical strategy, addiction treatment can be delivered in different environments or settings. In general, the phrase *treatment setting* describes not only the physical environment of the treatment but also the level of treatment intensity. This includes the number of treatment components provided, the extent of staff attention received, and the amount of time spent receiving treatment. The continuum of treatment settings includes (1) inpatient hospitalization, (2) residential treatment, (3) intensive outpatient treatment, and (4) outpatient treatment. There is some overlap between treatment approaches and treatment settings, since certain treatment approaches are typically delivered in specific settings. For example, methadone maintenance treatment is generally delivered in outpatient settings and therapeutic community treatment has historically been provided in residential settings-although new models provide therapeutic community treatment in nonresidential settings.

- The general population of addicted patients experience significant, meaningful, and positive changes in biopsychosocial functioning following addiction treatment, irrespective of the specific treatment setting.

- Research does not provide convincing evidence that the general population of addicted patients experience more or broader changes associated with any particular setting.

- Research does not provide evidence of a clear relationship between treatment setting and posttreatment outcomes for the general population of addicted patients.

- Patients with more severe AOD-related problems, less social stability, and more severe psychiatric illness appear to benefit from inpatient treatment more than the general population of addicted

patients. Patients with greater psychosocial stability and less AOO-related impairment appear to benefit best from nonhospital and nonresidential treatment.

Treatment Components

Within each treatment approach and in each setting are numerous treatment components or services. Treatment *components are* specific clinical interventions, strategies, and procedures that are provided to achieve specific treatment goals and objectives. These include pharmacotherapies, behavioral relationship therapy, behavioral contracting, brief intervention therapy, stress management, social skills training, relapse prevention, employee assistance programs, Alcoholics Anonymous, and individual psychotherapy.

- For many patients, ***disulfiram*** (Antabuse) is an effective treatment component that helps improve program retention, prolong abstinence, and reduce drinking frequency after relapse. This is especially true when disulfiram is combined with a comprehensive and integrated biopsychosocial treatment with techniques designed to help patients adhere to the disulfiram regimen, increase motivation for compliance, and promote relapse prevention.

- The opioid antagonist ***naltrexone*** (Trexan) blocks the effects of impulsive opioid use and reduces opioid craving and use. This is especially true for highly motivated opioid-addicted patients who are involved in meaningful relationships with nonaddicted partners, employed full-time or attending school, and living with family members. For many alcohol-addicted patients, naltrexone is associated with a decrease in alcohol craving, an increase in abstinence rates, and reductions in number of drinking days, severity of alcohol-related problems, and relapse rates.

- Studies evaluating the synthetic opioid ***levo-alpha-acetylmethadol*** (LAAM) generally reveal that LAAM is comparable to methadone with respect to clinic attendance, patient reports of opioid withdrawal symptoms, illicit drug use, employment status, criminal activity, overall effectiveness, and medical safety.

- The use of ***buprenorphine*** for opioid addiction is still being investigated. It is comparable to methadone in its ability to suppress opioid withdrawal, retain patients in treatment, and decrease illicit opioid use. Buprenorphine has a better safety profile and a milder withdrawal profile than methadone.

- The use of *nicotine chewing gum* is more effective than placebo. When combined with behavior therapy, it is more effective than treatment alone.

- *Transdermal nicotine patches* are superior to placebo and work best in the context of a comprehensive biopsychosocial treatment program.

- *Behavioral relationship therapy* is superior to individual therapy and other types of relationship therapy. It can promote rapid reductions in AOD use, enhance maintenance of sobriety, enhance treatment outcomes, and decrease the probability of treatment dropout.

- *Behavioral contracting* involves setting specific goals and reinforcing approximations to these goals. It is an effective therapeutic service within the context of a comprehensive treatment and recovery program.

- *Brief intervention* treatment can have an overall impact comparable to that of more extensive counseling.

- Research has documented beneficial impact of *relaxation techniques,* including stress management training, systematic desensitization, biofeedback, aerobic exercise, and cognitive strategies.

- *Social skills training* appears to be an effective adjunct in promoting sobriety among patients who are deficient in social skills. It is particularly useful as a component in relapse prevention.

- *Relapse prevention* helps patients identify and avoid high-risk situations that can lead to lapses and relapses. It can help patients develop coping skills, make life-style changes, and increase healthy activities.

- Research suggests that *employee assistance programs* are beneficial services that facilitate dealing with work-based AOD problems.

- People who actively participate in *Alcoholics Anonymous* are more likely to experience improvements with regard to drinking behavior and psychological adjustment than those who do not.

- With the exception of client-centered therapy, *individual psychotherapy,* used as the exclusive treatment for substance use disorders, is a poor treatment strategy. However, individual psychotherapy can be valuable to introduce and engage patients into addiction treatment and to treat patients with mild severity levels of addiction. It is also helpful as adjunctive treatment to ongoing addiction treatment.

Factors Influencing Treatment Outcomes

Three factors can significantly influence the effectiveness of addiction treatment: program factors, therapist factors, and patient factors.

Program Factors: Addiction treatment programs that share the same approach or type of setting can differ substantially with regard to policies, protocols, and missions; quality of clinical staff; quality and philosophy of program management and administration; scope of treatment services provided; organizational features; and morale among patients and staff. The most effective treatment programs often feature several prominent characteristics: flexible policies that result from a case-management approach to individual patient needs, adequate funding, and a systematic assessment of program performance and prompt modification of deficient areas. Programs that experience low patient retention rates and poor treatment outcomes often have impersonal, inflexible approaches.

For methadone maintenance and therapeutic community approaches, longer treatment length is associated with positive treatment outcomes. While participating in methadone maintenance treatment and therapeutic community treatment, patients' biopsychosocial treatment outcomes are improved; when they stop treatment, their outcomes are generally better than before treatment, but not as good as during treatment.

Most of the recent controlled studies that examined length of treatment do not demonstrate differential outcomes for longer, as compared with shorter intensive psychosocial treatment episodes. This does not hold true, however, for patients with significant psychopathology or social instability. For some patients, such as

those who have severe impairment from psychiatric disorders or intense levels of criminal involvement, brief treatment episodes generally yield limited benefit, while longer term and more intensive treatment are associated with significant improvement. If outpatient continuing care or aftercare services are provided, the length of intensive psychosocial treatment may be shortened for many patients without reducing treatment efficacy.

Therapist Factors. High levels of therapist empathy are associated with positive treatment outcomes. The higher the level of counselor functioning in interpersonal skills, the better the treatment outcomes related to relapse and abstinence.

Patient Factors. Research has demonstrated that numerous patient variables are associated with treatment effectiveness, regardless of the treatment approach or setting. Overall, behaviors that indicate healthy psychosocial adjustment, such as active employment, an intact marriage, and a brief history of substance use, are associated with positive treatment outcomes. Conversely, behaviors that indicate poor psychosocial adjustment, such as unemployment and criminal involvement, poorer social and economic supports, as well as concomitant psychiatric and AOD disorders and more severe addiction, are associated with negative treatment outcomes. Regardless of the treatment approach or setting, patients-with the fewest psychiatric problems at admission generally have the greatest improvement and the best treatment outcomes. Patients with the most severe psychiatric problems at admission generally demonstrate the least improvement and poorest results, regardless of treatment approach or setting.

Methadone Dosing Factors. Methadone maintenance treatment programs with policies of providing adequate methadone doses (typically 60 mg daily and higher) in a flexible manner that is based on the individual patient's progress promote superior treatment outcomes in several ares. These areas include increased patient retention, decreased illicit opioid use, decreased criminal behavior, diminished incidence of HIV infection, and improvements in overall treatment progress.

Addiction Treatment and the Criminal Justice System

Patients who are legally pressured to participate in addiction treatment: (1) have an increased likelihood of participating in treatment, (2) tend to remain in treatment longer, and (3) have similar treatment outcomes as patients who voluntarily participate.

Addiction treatment in correctional settings is effective to treat addiction and to curb criminal recidivism when the programs have the support of correctional authorities, adequate resources, comprehensive therapy designed to affect overall life-style, and continuity of care after parole. Therapeutic communities are the most effective approach to addiction treatment within correction facilities. The longer the patient remains in prison-based therapeutic community programs, the more successful he or she is following release.

The Treatment Alternatives to Street Crime (TASC) program identifies, assesses, refers, and monitors addicted nonviolent offenders. It appears to be successful in identifying and referring previously untreated addicted offenders for screening, assessment, and AOD treatment. TASC provides a linkage between criminal justice and treatment systems and an alternative to incarceration that is less costly than incarceration.

Special Populations

Service providers and policy-makers are being prompted to provide addiction treatment that best meets the treatment needs of people from special populations, such as ethnic and cultural minorities, women (including pregnant and parenting women), and adolescents. Research has yet to adequately describe specific treatment needs of patients that are specifically related to their inclusion in a special population. Research has yet to identify the specific treatment components that should be provided to meet the treatment needs of patients from special populations. Similarly, research has yet to identify the optimal approaches and delivery of treatment interventions that best meet the needs of these patients. It is unknown if patients from special populations experience greater treatment outcomes when treated in specially designed programs rather than in general treatment programs. Also, it is unknown if treatment outcomes in patients from special populations are better, worse, or the same as those of other patients treated in general addiction treatment programs.

- The few available studies have generally concluded that adult men and women treated together for alcoholism in the same program do about as well. There is less agreement regarding addiction to drugs other than alcohol. The addiction treatment literature has little to offer in the way of outcome studies of treatment designed specifically for women.

- Overall, demographic variables such as ethnicity are not significantly related to treatment outcomes. There is no evidence that African Americans, Hispanics, and Asian-Pacific Islanders fare significantly better or worse in existing treatment programs than do members of other populations. There is evidence that ethnicity is less important in influencing outcomes than are the community structure, environment, treatment type, and pretreatment variables, such as employment.

- Overall, adolescent treatment research suggests that receiving treatment is better than not receiving it. Few comparisons of treatment method have consistently demonstrated the superiority of one method over another. Posttreatment relapse rates for adolescents are high. More controlled studies of adolescent treatment are needed that allow evaluation of the elements of treatment.

Chapter One: Introduction

> This is an overview of the effectiveness of addiction treatment. It describes specific treatment approaches, settings, and services and provides an analysis of their treatment effectiveness.

The question is often asked, "Does addiction treatment work?" At first glance, it seems that this apparently simple question should evoke a similarly simple answer. However, a thoughtful and reflective response takes into consideration important variations in types of patients, types of addiction problems, and types of treatment strategies. Thus, the question should be rephrased to, "In what ways is addiction treatment effective?" Indeed, the question could be broadened to, "Which patients, having what substance use problems, receiving what type of treatment strategies, delivered by what type of treatment providers, will successfully achieve what type of treatment goals? When asked in this way, the complexity of patients, problems, and treatment strategies can be addressed.

Goal and Purpose

This document is an overview of the effectiveness of treatment for alcohol and other drug (AOD) addiction. It seeks to review the ways in which addiction treatment is effective. The primary goal of this document is to provide the reader with an understanding of what works in the treatment of addiction. It is not intended to be a review of all of the available addiction treatment research and it does not review every area of addiction treatment. Rather, it is an analysis of several critical areas of AOD addiction treatment research-especially areas for which there is substantial evidence of effectiveness and areas that are important to health care decision-makers.

The purpose of this document is to provide Federal and State health policy-makers, government decision-makers, and other interested individuals with treatment effectiveness information necessary to make informed decisions regarding addiction treatment. This document describes specific treatment approaches, treatment settings, treatment components and services, and provides an analysis of their treatment effectiveness. It also includes examples of some of the research studies used to support treatment effectiveness.

Organization

This chapter describes the goal, organization, and format of the document. It describes several major addiction research studies that will be repeatedly mentioned to in the text. The chapter provides an overview of several potential biases encountered in addiction treatment research, and provides examples of several Federal Government-funded research projects that are currently underway.

In order to understand how AOD addiction treatment effectiveness is measured, it is vital to have an understanding of the processes of addiction and treatment. Accordingly, Chapter Two, "Overview of Addiction and Treatment," defines and describes addiction, focusing on the biopsychosocial nature of the addictive process. It includes the diagnostic criteria for addiction and describes how addiction treatment is also a biopsychosocial process. This chapter includes a primer on the areas in which treatment effectiveness is measured and provides definitions for several terms used throughout this document.

Addiction treatment is not homogeneous, but can be divided into different approaches, each of which has somewhat different goals and levels of effectiveness. Thus, Chapter Three, "Treatment Approaches," reviews the effectiveness of the four primary approaches to addiction treatment: (1) methadone maintenance treatment, (2) therapeutic community treatment, (3) "traditional" chemical dependency treatment, and (4) outpatient "drug-free" nonmethadone treatment. The review of each treatment approach includes (1) the philosophical foundation of the approach, (2) a description of the background of the approach, (3) a brief summary of the effectiveness of the approach, and (4) a more detailed description of the effectiveness of the approach, combined with Research Highlights-examples of the research that support the conclusions regarding treatment effectiveness.

There is debate among the general public, health care professionals, and government leaders regarding the superiority of addiction treatment when delivered different settings. Chapter Four, "Treatment Settings," is a discussion of the effectiveness of treatment with regard to the setting in which the treatment occurs. This discussion addresses the effect on treatment effectiveness of (1) inpatient hospitalization, (2) residential treatment, (3) intensive outpatient treatment, and (4) outpatient treatment.

Addiction treatment consists of numerous treatment components, each of which has a different level of effectiveness. Some of these components are provided as autonomous treatment services. Chapter Five, "Treatment Components" reviews the effectiveness of several addiction treatment components or services: (1) selected pharmacotherapies, (2) behavioral relationship therapy, (3) behavioral contracting, (4) brief intervention treatment, (5) stress management, (6) social skills training, (7) relapse prevention, (8) employee assistance programs, (9) Alcoholics Anonymous, and (10) individual psychotherapy.

The effectiveness of AOD addiction treatment is influenced by numerous variables such as the characteristics of patients and programs. Chapter Six, "Treatment Outcome Variables," describes the effects on treatment outcomes of (1) treatment program characteristics, (2) the length of treatment, (3) therapist characteristics, (4) patient characteristics, and (5) dosage policies at methadone maintenance treatment programs.

The addiction treatment system and the criminal justice system are natural allies, since they share many clients. Chapter Seven, "Addiction Treatment and the Criminal Justice System," discusses the effectiveness of mandated treatment, correctional system-based treatment programs, and court-referred treatment.

In this era of greater awareness of cultural diversity, it is becoming increasingly important to explore the effectiveness of addiction treatment for special populations. Chapter Eight, "Special Populations," is a discussion that relates to the effectiveness of addiction treatment for women, ethnic and cultural minorities, African Americans, Hispanic Americans, and adolescents.

The review of addiction treatment effectiveness reveals a wealth of information. Chapter Nine, "Summary and Recommendations," summarizes the findings and includes recommendations for policy and research.

Basis of Analyses

This document was prepared by executing comprehensive literature searches, reviewing existing meta-analyses, examining published literature reviews, and reviewing published research. Obviously, there is great variation in the goals of individual research studies. Similarly, there is great variation in the strength of the research design of studies and the availability of well-designed studies in different areas of inquiry.

This document mirrors the addiction treatment field in the variety of the strength of research designs and the variety of the strength of research evidence used to make treatment effectiveness assessments. Although highly desirable and scientifically preferred, controlled experiments with random assignment to intervention and control conditions are frequently unavailable in some areas of addiction treatment research. Consider quasi-experimental research designs (including multiple time series, prospective cohort, and those that use nonequivalent comparison groups) and nonexperimental interventions (such as those with no random assignments or no control group). These are often preferred research designs in the social sciences from practical and ethical perspectives, despite the potential for problems related to validity, measurement, and sampling. The perspective of this document is that while experimental research designs are preferred, data derived from quasi-experimental and nonexperimental research designs are critically important, as discussed by Sechrest and Hannah (1990).

Most of the upcoming chapters have sections called "Research Highlights." These sections include abstracts of research studies or literature reviews relevant to the topics being reviewed in the chapters. These represent a small fraction of the published research used in the preparation of this document. They are provided so the reader can gain a greater understanding of topic being reviewed and to assist those readers who wish to review some of the original research articles. An attempt has been made to include studies that are scientifically well-designed and those which provide the reader with useful information. To achieve this objective, the "Research Highlights" sections often include a blend of studies with experimental, quasi-experimental, and nonexperimental designs.

Selected Major Research Projects

While the scope of the research reviewed for the development of this document is large, a few studies are mentioned in more than one chapter. In general, these are large-scale investigations that examined the effectiveness of more than one treatment approach. In order to avoid having to repeat the description of these studies every time they are mentioned, abstracts of the studies are provided below.

The California Drug and Alcohol Treatment Assessment. In 1992, the State of California Department of Alcohol and Drug Programs sponsored an initiative to examine the outcomes of addiction treatment. The California Drug and Alcohol Treatment Assessment (CALDATA) is a large-scale probability sample study of the effectiveness, benefits, and costs of addiction treatment in California, using State databases, provider records, and follow-up interviews with participants in treatment (Gerstein et al., 1994). The CALDATA study examined 21 residential treatment programs, 23 social model recovery houses, 29 outpatient nonmethadone treatment programs, and 2 types of methadone programs: 18 outpatient methadone maintenance treatment programs and 19 methadone detoxification programs. The first phase of CALDATA involved the random selection of patients from discharge or in-treatment lists developed on site at cooperating providers. Sixteen counties, 97 unique providers, and 3,055 participants who were in treatment or were discharged between October 1, 1991 and September 30, 1992 were selected into the study sample. In the second phase, 1,859 patients drawn from 83 cooperating providers were successfully contacted and interviewed in 9 months. Follow-up interviews occurred an average of 15 months after treatment, with the longest interval being 24 months. Part of this sample included patients who were in continuing methadone maintenance treatment, since this type of treatment typically lasts longer term than other approaches.

Comprehensive Assessment and Treatment Outcome Research. The Comprehensive Assessment and Treatment Outcome Research (CATOR) is the largest independent evaluation service for addiction treatment programs in the United States. It functions as a clinical auditing service that conducts outcome evaluations

for addiction treatment programs and documents correlates of treatment success. The programs in the CATOR registry use standardized data collection instruments in document information on each admission, including intake, history, and discharge data. Participating patients and programs agree that their data can be aggregated and analyzed for scientific studies.

The programs monitored by CATOR are generally abstinence-based, traditional chemical dependency treatment programs (described in the next section). Recent reports describe data based on nearly 10,000 inpatients and over 2,000 outpatients from about 40 inpatient and 20 outpatient programs and include information regarding participation in Alcoholic Anonymous (Hoffman, Harrison, and Belille, 1984; Hoffman and Miller, 1992; Hoffman and Miller, 1993).

Drug Abuse Reporting Project. In the 1960's, Federal funding for community-based addiction treatment became widely available. During this period, the National Institute of Mental health established the first large-scale evaluation of treatment outcomes. This was known as the Drug Abuse Reporting Project (DARP). Researchers at Texas Christian University collected data on over 44,000 patients who entered 52 treatment programs during 1969 through 1973. These patients were participating in a variety of treatment approaches, including methadone maintenance, therapeutic communities, and outpatient nonmethadone treatment. Information was collected at admission, during treatment, and discharge, and at 1, 3, 6, and 12 years after discharge (Sells, 1974a, 1974b; Sells and Simpson, 1976a, 1976b, 1976c; Simpson, 1984; Simpson and Friend, 1988; Simpson and Sells, 1982, 1990; Simpson, Savage, and Lloyd, 1979).

Treatment Outcomes Prospective Study. The National Institute on Drug Abuse (NIDA) provided funding for the Treatment Outcomes Prospective Study (TOPS) during the late 1970's and early 1980's. By this time, addiction treatment approaches had matured somewhat, and the patterns of substance use had become more complex, including an increase in the use of cocaine and polydrug addiction. At the Research Triangle Institute, Hubbard and colleagues (1984, 1988, 1989) studied 11,750 patients who had entered 41 treatment programs in 10 cities between 1979 and 1981. Like their counterparts in the DARP study, subjects in **TOPS** were participating in a variety of treatment approaches, including methadone maintenance, therapeutic community, outpatient nonmethadone treatment, and criminal diversion programs. Follow-up interviews were conducted at intervals ranging from 3 to 60 months after discharge.

Potential Biases

In research, *biases* are sources of systematic errors that arise from faulty research designs, poor data collection procedures, or inadequate analyses. These errors diminish the likelihood that observed outcomes are attributable to the intervention. Biases are inherently present in many nonexperimental and observational studies, but are sometimes not adequately controlled for in experimental and quasi-experimental studies. While there are many types of biases, the reader should keep in mind a few that seem particularly relevant for studies reviewed in this document.

A selection *bias* results when certain individuals are selectively included or excluded from a control or comparison group. Potential problems include selective admission, selective nonparticipation, selective survival, and selective detection. A selection bias may occur when a comparison group is not equivalent to the intervention group because of demographic, psychosocial, or behavioral characteristics. Epidemiological studies are laden with problems of selection bias.

Consider that addiction treatment research frequently involves voluntary participation in treatment or research activities. The characteristics of individuals who volunteer or agree to participate in treatment or research are often characteristics associated with readiness for treatment. Thus, some research studies have a potential self-selection bias since they utilize subjects who are more prepared for treatment than the average addicted individual.

There are times when an observed effect between intervention A and outcome B may be attributable to a third factor (C), which is related to both A an B. In other words, while there may be a weak or no relationship between A and B, the explanatory relationship is between C and B. In this case, an outcome is attributable to a confounding factor, not the intervention. This is called a ***confounding*** *bias.* Age, ethnicity, gender, and socioeconomic status are important confounders.

Consider a study that identified a significant association between active participation in Alcoholics Anonymous and positive treatment outcomes. The question can be asked, "Are the observed positive outcomes attributable to Alcoholics Anonymous or is there a confounding factor, such as extroversion, that predisposes some people to participation in the group-intensive process of Alcoholics Anonymous?" Many such questions are left unresolved in outcome research and in this document.

The results of a study can be contaminated by changes in subjects' behaviors resulting from their assumptions about what the researcher is trying to prove. Called the *Hawthorne Effect,* patients behaviors sometimes improve, not because they are receiving formal treatment, but because they are receiving attention.

Similarly, study subjects' behaviors can change when they are tested or observed often. This can occur because study subjects take tests, are interviewed, or are observed. This is termed a *testing* ***or*** *observation bias.* It seems likely that some examples of positive treatment outcomes are at least minimally influenced by a testing bias.

The treatment outcome literature and this document both have a bias for studies that demonstrate positive results. That is, the literature tends to publish articles that demonstrate the effectiveness of treatment strategies and tends not to publish as many articles that describe weak or negative outcomes. Since this document is an overview of addiction treatment effectiveness, there is a tendency to highlight research that demonstrates significant positive outcomes.

Appropriateness of Treatment and Research. The evaluation and interpretation of addiction treatment outcome research is also complicated by methodological factors that relate to treatment program characteristics and patient characteristics.

Within outcome research, there has been an historical tendency to search for the "best" possible addiction treatment strategy. This search has been generally unsuccessful, in large part because it compares addiction strategies across undifferentiated groups of patients. Specifically, there has been an inclination to examine the overall outcomes of a specific treatment strategy averaged across an unselected group of patients (Donovan and Mattson, 1994). These efforts presume homogeneity among treatment and patients. As a result, no treatment strategy has demonstrated effectiveness for all patients and no treatment strategy can claim to be the most effective overall.

There is currently an awareness of the significant heterogeneity among both treatment strategies and patients. Indeed, the interactions between treatment strategies and patients form the basis of treatment matching research efforts, which are underway.

Ongoing Research Efforts

Prior research provides answers to many treatment outcome questions, but leaves many important issues unresolved. Several Federal Government-sponsored research initiatives that are currently in progress will help to provide answers to critical questions and heighten the awareness of addiction treatment effectiveness. Specifically, several studies will provide muchneeded information regarding specific subgroups of patients with distinctive treatment needs. They will provide data regarding the effectiveness of addiction treatment that is specifically designed for such patients. For example, Project MATCH, sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), is the first multisite controlled randomized trial designed for matching alcoholism treatment to client heterogeneity. It is intended to address the methodological issues that influence matching, such as treatment specificity, patient heterogeneity, and representativeness of programs.

Sponsored by NIDA, the Drug Abuse Treatment Outcome Study is a major national evaluation of drug abuse treatment, following the model established by the Drug Abuse Reporting Program and the Treatment Outcome Prospective Study. It is a longitudinal prospective study of 10,000 patients in 99 treatment programs. Also, the National Treatment Improvement Evaluation Study, sponsored by the Center for Substance Abuse Treatment, is an evaluation of the demonstration programs that receive funding from the block grant program.

The Alcohol and Drug Services Survey, sponsored by the Substance Abuse and Mental Health Services Administration, Office of Applied Studies (SAMHSAIOAS), is obtaining information on a national sample of approximately 2,000 treatment program regarding treatment effectiveness in terms of AOD use behavior, socioeconomic status, criminal justice status, psychosocial functioning, and further treatment episodes. This study will analyze outcomes in relation to type of treatment, program and patient characteristics, services delivered, length of time in treatment, and completion of treatment,

The National Treatment Study, a sample survey sponsored by SAMHSA/OAS, is directed toward understanding the content of addiction treatment. Through interviews at about 200 AOD treatment facilities, information will be collected on the number of hours of individual therapy, group therapy, and educational counseling typically provided by various types of treatment programs. It will collect data describing the content and the process of how treatment is provided. The study will also interview a sample of about 3,000 clients, in order to provide profiles of patients in various modalities of treatment.

The Services Research Outcomes Study, sponsored by SAMHSAIOAS, provides for a 4- to 5-year post-discharge follow-up of a sample of 3000 patients treated during 1989 and 1990 at 120 treatment programs. The study will analyze results in light of the type and cost of treatment services the clients received. Pretreatment variables will include demographic characteristics, prior treatment history, criminal justice history, social support, and addiction severity. Treatment variables will include duration of treatment episodes, key services received, program staffing, ownership, resource base, and costs. Posttreatment variables include employment, further treatment episodes, and criminal justice status, such as probation or incarceration.

Context

In many ways, current studies supported by SAMHSA/OAS, NIAAA, NIOA, and others represent a new generation of addiction treatment research. In particular, many current research efforts are matching specific treatment approaches and services to patients with specific treatment needs, and employing patient placement criteria. This is in contrast to many older studies that compared "generic" treatments to heteroyenous populations.

Thus, this document should be viewed in an historical context. This overview of addiction treatment effectiveness is based on what was known at a specific point in time. It is part of an overall effort by SAMHSA to integrate previous outcome knowledge with future research designs and activities. It is the first document of a series designed to examine the effectiveness of addiction treatment, AOD abuse prevention, mental health treatment, and prevention of mental health problems. The document itself provides a context for the SAMHSA and other Federal Government-sponsored research initiatives currently underway. It is hoped that this document will provide the reader with practical information and suggest areas for future inquiry.

Chapter Two: Overview of Addiction and Treatment

The 1960's are often remembered as a time of social and political turbulence fueled by widespread drug use. Addicted patients were viewed with enmity, and the few physicians who treated such patients risked being professional outcasts. At that time, addiction was overwhelmingly perceived in terms of criminal behavior, social deviance, and immorality. The preferred strategy for addiction intervention was the criminal justice system.

> Addiction is a progressive, chronic, primary, relapsing disorder generally involving compulsion, loss of control, and continued use of AODs, despite adverse consequences.

Although relatively primitive and prone to experimentation, addiction treatment-especially alcoholism treatment and methadone maintenance-began to mature somewhat during the 1970's. During the 1980's, addiction treatment expanded tremendously in the public and private sectors, partially in response to the increase in cocaine addiction, the rapid growth of employee assistance programs, and the growing acceptability of addiction treatment, as popularized by Betty Ford. Ironically, in the 1980's, private treatment programs fiercely competed with one another for patients who had been treated with contempt and derision, and had few treatment choices during the 1960's.

During the past decade, addiction treatment has further matured in both the public and private sectors, and the focus of intervention has shifted from the criminal justice system to the public health and criminal justice systems combined. And, while there is a great demand for treatment availability, there are equally intense demands for cost efficiency and treatment effectiveness.

Making assessments regarding the effectiveness of treatment requires asking the questions, "Does addiction treatment work?" "What are the benefits of addiction treatment?" and "How do we know that treatment works?" The answers to these questions are found in addiction research studies, especially in treatment outcome studies.

However, AOD problems are emotionally charged topics for many people. As a result, many people have highly personal ideas about addiction and therefore, about the purpose and need for addiction treatment. Fortunately, research during the past several years has helped addiction specialists gain greater understanding about addiction and the nature of the addiction process.

What Is Addiction?

The term *addiction* describes a progressive, chronic, primary, relapsing disorder that generally involves the compulsion, loss of control, and continued use of AODs, despite adverse consequences.

That is, addiction tends to worsen over time if left untreated (progressive); it is generally a long-term condition (chronic), not a brief episode; it is not the result of an underlying psychiatric problem (primary); and it has a tendency to reoccur if untreated or during high-risk times (relapsing).

Addiction invariably involves obsessional thinking about obtaining and using AODs (compulsion). Addicted people often use more AODs than they intend, use AODs for longer than they intend, or lose control over their behavior while under the influence of AODs (loss of control). Perhaps the most devastating feature of

addiction is the individual's inability to stop using AODs, despite obvious and severe adverse consequences. If left untreated, addiction may be fatal.

Addiction often, but does not always, involves the development of physical dependence, tolerance, and withdrawal. For example, some addicted people are involved primarily in binge alcohol or cocaine use.

The most recent edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (OSM-IV) describes the diagnostic criteria for substance-related disorders. Exhibit 2.1 lists the diagnostic criteria for addiction (which is called "substance dependence" by the American Psychiatric Association). The seven diagnostic criteria address the following issues: tolerance, withdrawal, loss of control, compulsion and drug seeking, and continued use despite adverse consequences.

The severity of addiction can vary. One patient's addiction may be severe and intense, and meet several of the diagnostic criteria for addiction. Another patient's addiction may be relatively mild and, while still problematic, may meet only a few of the diagnostic criteria. In fact, because addiction is progressive and worsens over time, many addicted people experience a worsening addiction severity over time, from mild and moderate to severe.

The Process of Addiction

Critical to understanding the effectiveness of treatment is the realization that addiction, treatment, recovery, and relapse are all biopsychosocial processes. The term *biopsychosocial* is used to describe something that has (1) biological, medical, and possibly genetic factors, (2) psychological and emotional factors, and (3) social, familial, cultural, and other environmental factors.

The biopsychosocial nature of addiction addresses two primary concepts: (1) that the emergence of addiction in an individual is affected by biological, psychological, and sociocultural factors, and (2) in turn, an individual's addiction has an effect on his or her biological, psychological, and social health. The same is true for treatment, recovery, and relapse.

From a clinical perspective, the primary goal of addiction treatment is to meet the distinctive treatment needs of each patient. Through biopsychosocial assessments, clinicians can document the treatment needs of each patient and create treatment plans designed to meet those needs. Assessing treatment effectiveness, therefore, involves the measurement of biopsychosocial factors that are in essence, treatment needs.

Measuring the Effectiveness of Treatment

How is the effectiveness of addiction treatment measured? During the earliest addiction treatment studies at the U.S. Public Health Service Hospital in Lexington, Kentucky, researchers considered only one criterion for measuring effectiveness: whether patients resumed AOD use after treatment. In other words, if a patient ever used AODs following discharge from the hospital, treatment was felt to be a failure.

Exhibit 2.1
Diagnostic Criteria for Addiction

The American Psychiatric Association states that addiction is a maladaptive pattern of AOD use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
   - A. A need for markedly increased amounts of the substance to achieve intoxication or desired effect
   - B. Markedly diminished effect with continued use of the same amount of the substance
2. Withdrawal, as manifested by either of the following:
   - A. The characteristic withdrawal syndrome for the substance
   - B. The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms
3. The substance is often taken in larger amounts or over a longer period than was intended
4. There is a persistent desire or unsuccessful efforts to cut down or control substance use
5. A great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects
6. Important social, occupational, or recreational activities are given up or reduced because of substance use
7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption).

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Since virtually all patients engaged in some AOD use following treatment, the Lexington treatment program was largely considered a failure (O'Donnell, 1969). This all-or-nothing perspective failed to consider that addiction is a chronic, relapsing, and biopsychosocial disorder.

Currently, addiction treatment research often involves assessment of a range of factors that, taken together, help to provide a profile of the overall biopsychosocial health of patients receiving addiction treatment. These include frequency and volume of AOD use, AOO-related medical problems, psychological health, social stability, status of family relationships, educational status, vocational stability, criminal activity, and most recently, HIV serostatus.

In other words, treatment effectiveness is measured by the ability of addiction treatment to have a meaningful impact on a cluster of biopsychosocial factors. Exhibit 2.2 provides an overview of addiction treatment outcomes that are measured in treatment effectiveness research. These indicators of treatment success include (1) changes in AOD use, (2) medical and physical health, (3) psychosocial functioning, (4) employment stability, (5) criminal justice system involvement, and (6) relapse prevention preparedness. Improvements or deterioration in all of these areas can be measured. Studies vary greatly with regard to the types and scope of treatment outcomes that are examined.

In What Ways Can Treatment Work?

As will be made clear in this document, addiction treatment is not a single strategy, addicted patients do not all have the same treatment needs, and there are great variations in research that evaluates addiction treatment. Despite these challenges, the review of a few studies can help to provide examples of ways in which addiction treatment is effective in meeting the biopsychosocial needs of patients.

A study of 742 addicted patients who were treated in one of several types of treatment programs examined whether patients improved following treatment, whether the improvements extended beyond improvements in AOD use, and whether these improvements were the result of treatment (McLellan et al. 1982). This study demonstrated the effectiveness of several types of addiction treatment approaches as measured by improvements in the following areas:

- The number of days having medical problems
- The number of days worked
- The amount of money earned
- The number of days drinking alcohol
- The number of days intoxicated
- The number of days using drugs other than alcohol
- The number of days involved with criminal activity
- The number of days having family problems
- The number of days having psychiatric problems.

Exhibit 2.2 Addiction Treatment Outcome Measures	
AOD Use	• Abstinence and sobriety • Reduced of AOD consumption • Fewer days or periods intoxicated • Substitution of illicit drug with an authorized medication
Medical and Physical Health	• Basic food and shelter needs met • Improved overall health • Fewer medical problems • Reduced use of health care services • Reduced use by spouse and family or health services • Reduced high-risk sexual behavior • Reduced use of needles or shared needles
Psychosocial Functioning	• Creating an AOO-free lifestyle • improved quality of interpersonal relationships • Reduced family dysfunction, abuse, and neglect • Improved psychological functioning • Treatment of emotional problems • Treatment of psychiatric disorders • Improved parenting
Employment Stability	• Increase likelihood in obtaining work • Increased job retention • Improved job performance • Increased number of days worked • Reduced accidents and absenteeism
Criminal Justice Involvement	• Reduced involvement with criminal justice system • Reduced DUI or OWI arrests • Reduced involvement in illegal activities • Reduced violent behavior
Relapse Prevention	• Reduced likelihood of using AODs again • Prepare for the possibility of relapse • Minimize the adverse effects of relapse

Several evaluation studies have demonstrated that addiction treatment is effective in reducing AOD use and in relieving many of the additional medical, social, psychological, and family problems generally associated with addiction (McLellan et al., 1982, 1983, 1986; Ball and Ross, 1991; Anglin et al., 1989; Hubbard et al., 1989; Miller and Hester, 1986).

For example, follow-up studies have indicated that addiction treatment can increase employment and reduce crime, family problems, and the use of medical benefits and sick time (McLellan et al., 1982; Ball and Ross, 1991; Miller and Hester, 1986; Walsh et al., 1991)

When examined as a whole, the CALOATA patients in residential treatment programs, social model recovery houses, outpatient nonmethadone treatment programs, outpatient methadone maintenance treatment programs, and methadone detoxification programs demonstrated the following indications of treatment effectiveness with respect to crime, AOD use, and health care: (1) criminal activity declined by 72 percent following treatment, (2) AOD use declined 43 percent following treatment, and (3) hospitalizations declined about one-third following addiction treatment. Also, there were corresponding improvements in other health indicators (Gerstein et al., 1994).

Chapter Three: Treatment Approaches

Addiction treatment is not a single, homogeneous, or uniform technique. Rather, addiction treatment includes numerous interventions, methods, strategies, and techniques with differences in philosophies, goals, and, to some degree, type of patients treated. Treatment strategies have evolved over time, generally independent of each other. Further, there are both differences and similarities among treatment strategies, meaning that the programmatic treatment goals at two programs may be (1) the same or equivalent, (2) compatible and complementary, or (3) conflicting and oppositional.

Addiction treatment approaches:

- **Methadone maintenance treatment**
- **Therapeutic community treatment**
- **"Traditional" chemical dependency treatment**
- **Outpatient "drug-free" nonmethadone treatment**

Need for Universal lexicon. The evaluation of addiction treatment is hampered somewhat by the absence of a universally accepted lexicon of addiction treatment interventions. Existing analytical frameworks inadequately describe the range of interventions available, since they generally emphasize treatment setting rather than the underlying technology. For the purpose of aiding the development of addiction treatment research, Saxe and Shusterman (1991) have suggested a taxonomy based on two dimensions: treatment model and treatment setting. Within this classification scheme, treatment models consist of psychosocial, pharmacological, educational, and self-help categories; treatment settings are diverse and include such categories as hospitals, therapeutic communities, halfway houses, and outpatient settings. The present document seeks to simplify the taxonomic problem by suggesting a classification based on (1) treatment approaches, (2) treatment settings, and (3) treatment services or components, while recognizing that overlap is inherent in any classification strategy.

Review of **Terminology**

In this document, the phrase *treatment approach* describes a broad treatment intervention based on a specific philosophical concept. For example, methadone maintenance treatment is a treatment approach that is based on the philosophy of opioid substitution and medically-monitored maintenance. The primary treatment approaches in the field of addiction treatment can be categorized as follows:

- Methadone maintenance treatment
- Therapeutic community treatment
- "Traditional" chemical dependency treatment
- Outpatient "drug-free" nonmethadone treatment.

The phrase *treatment setting* refers to the physical setting or format in which one or more treatment approaches are established. For example, a specific treatment approach can be provided in an inpatient, residential, intensive outpatient, or outpatient setting-or all four.

The phrase *treatment components* refers to specific clinical interventions, strategies, and procedures that are provided to achieve specific treatment goals and objectives. Treatment components exist both within treatment programs and as stand-alone services. These include such services as screening, assessment,

counseling, drug testing, tuberculosis testing, medical and psychiatric treatment, and group therapy. Exhibit 3.1 illustrates the treatment approaches, settings, and components that are reviewed in this document.

Exhibit 3.1
Treatment Approaches, Settings, and Components

Treatment Approaches	Treatment Settings	Treatment Components
Methadone Maintenance Treatment Therapeutic Community Treatment "Traditional" Chemical Dependency Treatment Outpatient Drug-Free Nonmethadone Treatment	Inpatient Residential Intensive Outpatient Outpatient	Pharmacotherapies Behavioral Relationship Therapy Behavioral Contracting Brief Intervention Treatment Stress Management Social Skills Training Relapse Prevention Employee Assistance Programs Alcoholics Anonymous Individual Psychotherapy

In general, ***treatment intensity*** describes the amount and magnitude of treatment, especially the number of treatment components and the frequency of services. The intensity of treatment can also be influenced by such factors as patient-to-staff ratios and the provision of specialized treatment components such as parenting and child development training for pregnant an parenting addicted women. Thus, inpatient treatment can be described as more intense (or a higher level of care) than outpatient, because inpatient treatment generally provides more treatment components.

Critical to understanding addiction treatment outcomes is the fact that treatment approaches can be provided in different settings and that individual treatment programs differ significantly with regard to the number, type, and quality of services provided. Also, there is some overlap between treatment approaches and treatment settings. For example, therapeutic communities are invariably residential as opposed to outpatient. Similarly, methadone maintenance treatment is invariably outpatient, not inpatient.

At the same time, a specific treatment component (such as group therapy) can be both a treatment service (e.g., group therapy within a therapeutic community) as well as a treatment approach (e.g., a private psychologist who uses group therapy as the only treatment service, and calls it addiction treatment). As a result, some research findings are likely to appear under more than one heading.

The Overall Effectiveness of the Four Treatment Approaches

Evaluation of the effectiveness of the four treatment approaches requires a review of addiction treatment outcome research. The body of research studies includes great variety with regard to methodological soundness, research design, and significance and importance of outcomes.

An examination of the literature reveals that the quantity and quality of addiction treatment outcome research are not evenly divided among these four treatment approaches. The most extensive and scientifically sound research has been conducted regarding methadone maintenance treatment. Research regarding therapeutic communities and outpatient nonmethadone treatment is less extensive than for methadone maintenance treatment but more extensive than for "traditional" chemical dependency treatment.

Although there are profound philosophical and clinical differences among these four treatment approaches, it is possible to arrive at a few conclusions regarding the overall effectiveness of addiction treatment. Addiction treatment outcome research demonstrates the following:

- Treatment works: Patients in treatment typically reduce, if not stop, their AOD use. Such reductions often remain when measured several months and often years after treatment. Also, the effectiveness of treatment is not limited to AOD use. Rather, addiction treatment has a positive effect on physical health, psychosocial functioning, employment stability, criminal justice involvement, and prevention of relapse.

- Patients exhibit the greatest improvements while actively participating in some aspect of treatment. Similarly, patients' behaviors are often poorer following treatment than during it. However, patients behaviors are generally better after treatment than before treatment.

- The length of treatment episodes is often an important factor in addiction treatment effectiveness. For some treatment approaches, and for some patients, longer episodes of addiction treatment yield better treatment outcomes than shorter treatment episodes. Further, the willingness to remain in treatment relates to the quality of the treatment program as well as patient motivation factors.

- The effectiveness of addiction treatment varies greatly among programs-even within the same treatment approach. These variations are related to the varying quality of clinical management, therapeutic competence, the number of treatment components provided, and the characteristics of patients receiving treatment.

- Overall, and among all four treatment approaches, the benefits of addiction treatment clearly outweigh the costs. The cost of treatment is generally recouped in savings in other areas. However, variations in cost-benefit methodologies and results are great.

Methadone Maintenance Treatment

Philosophy. Heroin addiction generally involves the use of an illicit and medically unsafe short-acting drug of unknown purity, potency, and dosages, taken numerous times daily, most often through hypodermic needles, involving criminal activity to sustain ongoing access to the drug. Methadone maintenance treatment involves the substitution of heroin with a medically safe long-acting medication of known purity, potency, and quantity, taken orally once daily and combined with biopsychosocial treatment services.

Background. In 1963, concerns about heroin addiction prompted the Rockefeller Institute (now Rockefeller University) to initiate heroin addiction treatment research. At Rockefeller, Vincent Dole, a senior physician and researcher, was joined by Marie Nyswander, a psychiatrist with extensive experience in opioid addiction.

Convinced of the limitations of psychiatry for heroin addicts, and recognizing that relapse was related to persistent or recurring opioid craving, Dole and Nyswander theorized that control of the craving was an essential component of heroin addiction treatment. Since their overall clinical goal was rehabilitation rather than abstinence, they considered the use of an opioid medication as a means of reducing craving, decreasing illicit opioid use, avoid repetitive withdrawal, and making addicted people accessible to rehabilitation (Dole and Nyswander, 1965).

Stabilizing opioid addicts with morphine was unsuccessful because patients alternated between being feeling euphoric and sick. Since the duration of action was longer, methadone was tried. Dole and Nyswander (1965), and Dole, Nyswander and Kreek (1966) observed that a daily maintenance dose of 80 to 120 mg eliminated mood swings, euphoria, rapid cycles of withdrawal and opioid craving, and allowed patients to function normally. They discovered that adequate doses of methadone produced a pharmacologic cross-tolerance, or "blockade," so that patients would not experience any opioid or euphoric effects if they were to self-administer a normal dose of a short-acting opioid such as heroin.

Dole and Nyswander's model of methadone maintenance strongly emphasized the need to combine pharmacologic substitution with psychological, social, and rehabilitative services that promote the development of a productive, prosocial lifestyles. Thus, studies of the effectiveness of methadone maintenance treatment do not assess the effectiveness of methadone the medication alone but involve the evaluation of methadone substitution in the context of biopsychosocial treatment-which varies greatly among methadone maintenance treatment programs.

Summary of Effectiveness. Studies during the first decade of methadone maintenance treatment yielded consistently positive outcomes. These early treatment outcomes included: 1) a decrease in antisocial behavior measured by arrest and/or incarceration, 2) an increase in social productivity measured by employment andlor schooling or vocational training, 3) the clinical impression of freedom from cravings for heroin confirmed by negative urine specimens after stabilization on methadone, and 4) the recognition of, and willingness to accept help for, psychiatric and other problems, including those related to excessive use of alcohol or other drugs (Gearing, 1974).

Methadone maintenance treatment has been the subject of more treatment outcome research than any other addiction treatment approach. Overall, research has demonstrated that methadone maintenance treatment is an effective treatment for heroin addiction when measured by:

- Reductions in the use of illicit opioids
- Reductions in criminal activity
- Improvements in social health and productivity
- Improvements in overall health
- Retention in addiction treatment
- Reductions in needle sharing
- Reductions in HIV infection transmission rates.

For example, the recent CALDATA study revealed that when compared with pretreatment rates, patients participating in methadone maintenance treatment experienced a 67 percent decrease in the use of AODs, an 84 percent decrease in criminal behavior, and a 39 percent decrease in hospitalizations for physical health, drug overdose, or mental health problems (Gerstein et al., 1994).

Overall, many such improvements continue after leaving methadone maintenance treatment. However, these improvements are generally greater during treatment than following discharge-especially premature discharge.

The Effectiveness of Methadone Maintenance Treatment

Methadone maintenance treatment is associated with treatment improvement when measured by decreases in illicit opioid use, reductions in criminal activity, vocational improvements, and reductions in injecting drug use and other risks for HIV and hepatitis.

Decrease in Illicit Opioid Use. Patients' use of illicit opioids declines, often dramatically, during methadone maintenance treatment. Longer treatment length is associated with greater reductions in heroin use. In addition, many patients experience significant declines in the use of illicit opioids that continue many years beyond the treatment period. However, adequate methadone dosage levels are essential for treatment effectiveness.

Research Highlights

- *Data from the TOPS studies demonstrated that 63.5 percent of 285 patients who stayed in methadone maintenance treatment for at least 3 months were regular (daily or weekly) heroin users in the year before admission. After 3 months of treatment, the use of any level of heroin had declined to 5-6 percent of patients {Hubbard et al., 1989).*

- *In a study of 490 patients in continuing methadone maintenance treatment for 6 months to 4.5 years, the use of heroin within the last 30 days was reduced 71 percent compared to preadmission levels. Importan tly, heroin use was direc tly related to methadone dosage: In patients on daily dosages above 71 my per day, no heroin use was detected Patients on daily dosages below 46 my were five times more likely to use heroin than those receiving higher doses (Ball and Ross, 1991).*

- *In a study of 933 heroin addicts participating in methadone maintenance programs that compared behavior during periods on methadone maintenance and off, it was demonstrated that during periods of methadone maintenance, illicit opioid use significantly decreased Reduction in illicit opioid use were the most prominent effects among nine indicators of treatment success (Powers and Anglin, 1993).*

- *In the DARP study, 44 percent of 895 patients who entered methadone maintenance treatment reported no daily use of illicit opioids in the first posttreatment year. This represented a 56 percent decrease from 100 percent daily use in the 2 months before admission (Simpson and Sells, 1982J.*

- *Twelve years following admission to treatment, DARP studies showed that opioid use among addicts declined progressively over time until year 6, when it stabilized at about 40 percent for "any" use and 25 percent for "daily" use (Simpson et al., 1986J.*

- *In both the DARP and TOPS studies, long treatment duration was the strongest predictor of reduced heroin use among methadone maintenance patients.*

- *A study of 100 chronic heroin users consecutively admitted to a methadone maintenance treatment program in San Antonio no ted that 1 year after admission, only 4 percent continued to use heroin (Maddux and McDonald 1973J.*

- The CAL DA TA study revealed that when compared with pretreatment rates, patients participating in methadone maintenance treatment experienced a 67percent decrease in the use of AODs (Gerstein et al., 1994).

Reduction in Criminal Activity. When opioid-addicted patients participate in methadone maintenance treatment, they have a decreased likelihood of participating in criminal activities. Patients who remain in methadone maintenance treatment for long periods of time are less likely to be involved in criminal activity than patients in methadone maintenance treatment for short periods. The availability of methadone maintenance treatment programs in a community is associated with a decrease in the criminal activity in that community, particularly theft.

Research Highlights

- In a retrospective study of 933 heroin addicts {Powers and Anglin,1993), rates of criminality, arrests, and drug dealing decreased during episodes of methadone maintenance when compared to addicts not in treatment.

- Among the 617 patients studied by Ball and Ross (1991), there was a 70.8 percent decline in crime-days within the 4month treatment period This was followed by continuing, but less dramatic, declines in mean crime-days among those in treatment for I-3 years. Those in treatment for six or more years had the lowest rate of crime-days per year (14.5).

- In a study of 510 addicts who remained in methadone maintenance treatment for 3 months or longer, the average number of days engaged in illegal activity in the last month dropped from 10.8 before treatment to 1.4 while in treatment /Simpson et al., in press).

- In the TOPS studies, 32 percent of the methadone maintenance treatment patients acknowledged committing one or more predatory crimes in the year before treatment, but only 10 percent continued these activities during treatment. By 3 to 5 years after leaving treatment, 16 percent of the methadone maintenance patients reported predatory criminal activity-a reduction of one-half the pretreatment level {Hubbard et al., 1989J.

- A study of police reports and methadone maintenance treatment program statistics in San Antonio, Texas, revealed that following an increase in serious crime over a 5-year period: 1) the crime rate decreased when there was an increase of heroin users in methadone maintenance; and 2J 4 years later, when treatment funds were lost, the treatment rate decreased and the crime rate increased especially theft (Maddux and Desmond, 1979).

- The CALDA TA study revealed that when compared to pretreatment rates, patients participating in methadone maintenance treatment experienced an 84 percent decrease in criminal behavior. Among methadone maintenance treatment patients, there was an 86 percent decrease in selling drugs and an 82 percent decrease in the percent arrested booked or taken into custody (Gerstein et al., 1994).

Increased Likehhood of Obtaining and Retaining Employment. Patients who participate in methadone maintenance treatment have an increased likelihood for obtaining and retaining employment. Increases in

obtaining employment among patients in methadone maintenance treatment are most likely among patients who participate in treatment programs that provide vocational-related services.

Research Highlights

- *In an early study of 100 chronic heroin users admitted to methadone maintenance treatment, the employment rate increased from 21 percent at admission to 65 percent one year later (Maddux and McDonald 1973).*

- *In a study of 92 males admitted to methadone maintenance programs during 1971 through 1973, it was demonstrated that following methadone maintenance treatment, employment increased about 18 percent (Harlow and Anglin, 1984).*

- *In a IO-year follow-up study, 95 chronic opioid users who spent at least 1 cumulative year on methadone were compared with 77 chronic opioid users who spent less than 1 cumulative year on methadone. Those who were on methadone for more than 1 year had a higher average time employed (mean of 42 months) than those who were in treatment less than 1 year (mean of 35 months) (Maddux and Desmond, 1992).*

- *A study of 933 heroin addicts in methadone maintenance treatment demonstrated that rates of employment (and marriage) were increased during episodes of methadone maintenance (Powers and Anglin, 1993).*

Reduction in Injection Drug Use and Other Risks for HIV and Hepatitis. Methadone maintenance treatment has several roles regarding injection drug use, HIV, and hepatitis. By providing education, counseling, and support groups for AIDS prevention with at-risk patients, methadone maintenance can provide HIV/AIDS prevention services (Magura et al., 1989). When their opioid craving is reduced or eliminated, methadone-maintained patients have a decreased likelihood of using opioids'and hence, using needles.

Methadone maintenance treatment is associated with significant decreases in activities that could transmit HIV and hepatitis, such as sexual behavior and injection drug use. Further, patients who have been in methadone maintenance treatment for extended periods are less likely to engage in drug injection.

The longer that patients remain in methadone maintenance treatment, the greater the reduction of transmission behaviors. Decreases in injection frequency are associated with decreases in the sharing of needles and syringes. By decreasing injection drug use, methadone maintenance treatment helps reduce the spread of diseases that are transmitted through needle sharing, such as HIV infection and hepatitis.

Research Highlights

- *A recent review of studies related to HIV and injection drug users concluded that injection drug users who enter high-dosage methadone maintenance treatment prior to an epidemic of HIV in the local community and who remain in treatment during the epidemic, are substantially less likely to be infected with HIV (Des Jarlais, Friedman, and Ward 1993).*

- *In a study of 510 addicts who remained in methadone maintenance treatment for 3 months or longer, the average number of needle injections per month dropped from 107 before treatment to 7.7 while in treatment /Simpson et al., in press).*

- *A study of 230 methadone maintenance treatment patients demonstrated that there is a negative relationship between continuous time in methadone maintenance treatment and (1) the frequency of drug injection, (2) frequency of drug injection in shooting galleries, (3) frequency of letting others borrow their used works, and (4) frequency of drug injection in friends places. Patients with extended lengths of stay in methadone maintenance treatment had a decreased likelihood of engaging in drug injection. Similarly, the longer the patients remain in treatment, the greater the decreases in transmission behaviors (Abdul-Quader et al., 1987.)*

- *A survey of 28 methadone maintenance treatment programs in New York City revealed that HIV seropositivity in estabhshed patients was 27.2 percent compared with 459 percent in new patients (Truman and Brown, 1989).*

- *In a 3-year held study of methadone maintenance programs in New York City, Philadelphia, and Baltimore, treatment was found to be effective in reducing injecting drug use and needle sharing among most heroin addicts. Of 388 patients who remained in treatment for one year or more, 71 percent had ceased injection drug use. Conversely, among patients who left treatment, injection drug use progressively increased from 29 to 82 percent during the year following treatment (Ball et al., 1988).*

- *In a cross-sectional study of 376 current and former injection drug users, Longshore et al.(1993) noted that injection drug users who continued to inject drugs while in methadone maintenance treatment reported less sharing of needles and syringes than injection drug users not in treatment.*

- *In a study of 372 injection drug users, those enrolled in methadone maintenance treatment report fewer past-year sex partners than those not in treatment. Among study subjects who were patients in methadone maintenance treatment, the number of past-year partners was negatively related to time in treatment {Longshore, Hsieh, and Anglin, 1994).*

Therapeutic Community Treatment

Philosophy. In general, the therapeutic community treatment approach is designed for addicted patients whose psychosocial adjustments to conventional family, social, and occupational responsibilities were severely compromised prior to addiction, worsened because of addiction, and often include serious criminal behavior. Thus, the therapeutic community treatment approach assumes that the primary task of addiction treatment is a holistic rehabilitation or habilitation of the addicted person through participation in a long-term, intensive, generally residential program that involves highly structured blends of resocialization, milieu therapy, behavioral modification, education, progression through a hierarchy of occupational training and responsibility, and community reentry. Success in a therapeutic community is a change to a life-style that is free of substance use, economically productive, and free from antisocial behavior.

Background. In the United States, the therapeutic community approach began in 1958 with the establishment of Synanon in Santa Monica. Recovering alcoholics and drug addicts were the first participant-developers. While models vary, the therapeutic community approach was organized around helping people

addicted to illicit drugs, confrontational and group therapies, the principles of Alcoholics Anonymous (AA) and Narcotics Anonymous, structured lifestyles, and the concepts of honesty, drug abstinence, self-reliance, and personal responsibility by example.

The therapeutic community approach was designed to provide structure and a productive environment for individuals whose lives had been characterized by criminal activity, disorganization, and social rebellion. One assumption of the therapeutic community approach is that it takes an extensive immersion in the therapeutic community environment to derive the necessary therapeutic benefit. Thus, the approach requires participants to move into the treatment setting for several months to several years.

While there are substantial differences among them, therapeutic communities generally embrace the following:

- Reality-oriented group and individual therapy, which often includes lengthy encounter sessions that focus on daily living issues and long-standing emotional problems.
- Established and strict behavioral norms and expectations supported by a system of specified rewards and punishments.
- A system of hierarchal roles, privileges, responsibilities, and esteem accomplished through working up a ladder of tasks from admission to graduation. This often includes the potential for mobility from patient to staff status.

Therapeutic communities are an important treatment approach for those who have long-term involvement with the criminal justice system. This approach is often an alternative to incarceration. There are therapeutic communities within correctional settings. Depending upon individual therapeutic community rules, opioid-addicted participants in therapeutic communities often participate in methadone maintenance treatment programs or drug-free outpatient treatment programs.

Because of costs, availability, and insurance reimbursement, several adaptations of the therapeutic community model have been developed. These include:

- Modified therapeutic communities, where stays last an average of 6 to 9 months
- Short-term therapeutic communities, where residents remain an average of 3 to 6 months
- Adolescent therapeutic communities for juveniles
- Therapeutic communities in correctional facilities to begin the treatment process in jails and prisons.

In comparison with methadone maintenance treatment, within the therapeutic community approach, the specific drug or drugs of abuse represent a sociological factor more than a pharmacological foundation for addiction treatment. Thus, the demographic and drug-of-choice profiles of patients in therapeutic communities today are more diverse than in the past, when heroin-addicted patients predominated.

The pretreatment profiles of patients who participate in therapeutic communities frequently include severe addiction, profound addiction-related impairment, and significant criminal justice problems. They are appreciably younger, more heavily White, and more likely to use multiple drugs than patients in methadone

maintenance treatment. The types of treatment services at therapeutic communities often include encounter group therapy, tutorial learning sessions, remedial and formal education classes, residential job responsibilities, and conventional occupations for live-in/work-out patients.

Summary of Effectiveness. Retention in therapeutic communities after several months is positively and significantly related to improved treatment outcomes, as measured by decreased illicit drug consumption, decreased criminal activity, and increases in socially and economically productive behavior.

Patients who remain in therapeutic communities for at least one-third or one-half of the planned course of treatment are much closer to achieving treatment goals at follow-up than those who drop out earlier. The outcomes of earlier dropouts cannot be distinguished from those of individuals who did not enter treatment.

These improvements over nontreatment, which are estimated to be reductions of one-third to two-thirds in the rates of primary drug consumption and other criminal activity, and half-again increases in the rates of employment or education, vary with the amount of time spent in treatment. Thus, therapeutic communities provide significant benefits, even for those patients who do not complete treatment.

The Effectiveness of Therapeutic Communities

Decreased Drug Use, Criminality, and Unemployment. When patients participate in therapeutic communities, their substance use diminishes, as measured by daily opioid use and daily nonopioid use. Similarly, patients who participate in therapeutic communities have a decreased likelihood for criminal behavior as measured by arrest and incarceration. Also, patients participating in therapeutic community treatment have an increased likelihood of finding and retaining employment.

Research Highlights

- *The CALDATA study revealed that patients participating in residential treatment programs (which included therapeutic communities) experienced a 51 percent decrease in the use of AODs, a 61 percent decrease in criminal behavior following treatment, and a 55 percent decrease in the mean number of drugs used following treatment, which was associated with length of treatment. For example, the change among patients remaining in treatment 1 month or less was a 48 percent decrease, and the change among patients remaining in treatment 2 to 3 months was a 52 percent decrease, and the change among patient remaining in treatment 4 months or more was a 71 percent decrease. The CALDATA inquiry also noted that patients experienced a 40 percent decrease in hospitalizations (for physical health, drug overdose, or mental health problems) following addiction treatment. Finally, patients who remained in treatment 4 months or more experienced a 31 percent increase in full- time employment, and a 61 percent increase in the number of months worked full time (Gerstein et al., 1994).*

- *Bale et al. (1980) compared the effectiveness of short and long-term therapeutic communities with methadone maintenance treatment, detoxification only, and no treatment. Despite numerous methodological problems, the Bale study demonstrated that the long term therapeutic community and methadone maintenance treatment was superior to short- term therapeutic community treatment, de toxifica tion only, non- Veterans Administration treatment, and no treatment. Compared with the other groups, patients participating in long-term therapeutic community and methadone maintenance treatment were (1) two-thirds as likely to have used heroin in the past month, (2) three-fifths as*

likely to have been convicted during the year (3) one- third as likely to be incarcerated at year's end and (4) one-and-a-half times as likely to be at work or in school at year's end Patients participating in therapeutic community treatment scored somewhat higher on these measures than the group of patients receiving methadone maintenance treatment, but the differences were not statistically significant.

- *In a study by De leon et al., (1984), a sample of 230 treatment completers and dropouts from a therapeutic community were evaluated with regard to crime, drug use, and employment. Following treatment, both graduates and dropouts experienced significant treatment improvements. However graduates had drama tically superior post trea tmen t outcomes with regard to criminal behavior, drug use, and employment.*

- *In the DARP study, at 1 year after discharge, therapeutic community patients had significantly better treatment outcomes than de toxifica tion-only and in take-only patients, including daily opiate use, daily nonopioid use, arrests, and incarceration (Sells and Simpson, 1976a, 1976b, 1976c). The multivaria te-adjus ted outcomes from therapeutic community and methadone maintenance treatment patients (matched for time since admission] on daily opiate use, nonopioid use, employment, and a composite index were similar. Also, the length of stay in treatment was a positive, robust, and significant predictor of posttreatment outcomes (drugs, jobs, and crime). Among patients staying more than 90 days in treatment, there was a positive and linear relationship between outcome and retention. The outcomes among patients staying less than 90 days were indistinguishable from detoxification-only and intake-only cases, and there was no discernible relation between outcome and short lengths of stay.*

- *In the TOPS study, at a 12-month follow-up, treatment retention of 1 year or more in a therapeutic community was significantly related to reduced heroin use, lower crime involvement, and increased employment. The odds of having problems with heroin or crime were about two-fifths as great for the long-term residential clients as for early dropouts, and their odds of having a job were nearly 1.7 times higher (Hubbard et al., 1989).*

"Traditional" Chemical Dependency Treatment

Philosophy. The central philosophy of "traditional" chemical dependency treatment approach is that addiction is a disease requiring treatment that focuses on abstinence and the provision of psychosocial tools for establishing and maintaining abstinence and preventing relapse. This treatment approach heavily incorporates the philosophy and approaches of the 12-Step programs such as AA, Narcotics Anonymous, and Cocaine Anonymous. This approach, the predominant approach used by privately financed inpatient and residential programs, views detoxification and post-detoxification treatment as merely the beginning of long-term treatment, recovery, and relapse prevention processes.

Background. This approach, often called the "Minnesota Model," was developed in the late 1940's for the treatment of patients with alcoholism. The origins of this approach can be traced to three alcoholism treatment centers in Minnesota: Pioneer House (1948), Hazelden (1949), and Willmar State Hospital (1950). Daniel Anderson, a psychologist who conceived the Willmar State Hospital program and who became Hazelden's director, described several key concepts to this treatment approach (Geller, 1992):

- The acceptance of addiction as a disease that the patient did not intentionally contract
- The recognition of the responsibility of the patient for his or her recovery with its corollary that the goal of treatment is to assist the patient in achieving recovery rather than imposing a cure
- The belief that abstinence from all psychoactive mood-altering drugs is the only appropriate substance-related goal of treatment, and the only route to full recovery
- The incorporation of the twelve steps of AA into the treatment program design
- The use of recovering alcoholics and addicts as counselors
- The creation of a multidisciplinary treatment team
- The emphasis on group therapy as the primary treatment mode
- The emphasis on the importance of the therapeutic milieu as a treatment tool.

Over the next four decades, the treatment population included increasing numbers of patients addicted to alcohol and other substances, and in the late 1970's, patients whose primary substance of abuse was a drug other than alcohol. For the past decade, the majority of such programs have treated patients with substance use disorders, regardless of drug of choice.

This approach generally involves medically supervised detoxification in combination with biopsychosocial services designed to establish and maintain sobriety and prevent relapse. It has historically involved two phases: 28 or 30 days of inpatient treatment for detoxification and initiation of psychosocial services, followed by several months of group counseling and education-commonly called aftercare or continuing care. Throughout the process, patients attend AA (or other 12-Step program) meetings and attend didactic and experiential groups regarding AA, treatment, recovery, relapse, nutrition, family dynamics, and related topics.

Programs in this approach generally have the following treatment components:

- Daily group therapy with perhaps eight to twelve patients and one or two therapists
- Lectures two or three times per day given by counselors, family therapists, physicians, psychologists, nurses, social workers, and people in recovery
- 12-Step self-help meetings (such as AA, Narcotics Anonymous, and Cocaine Anonymous) on and off premises
- Family programs that emphasize the principles of Al-Anon family groups and encourage participation in Al-Anon for family members
- Patient assignments, such as writing a personal substance use history, contacting family members, and participation in community activities
- Therapeutic groups that address such topics as AIDS, anger, communication skills, coping skills, incest, men's and women's issues, recovery skills, relaxation training, and relapse prevention
- Weekly or twice-weekly individual counseling and treatment monitoring, which involves the initial and continuing assessments, assignments, treatment progress feedback, and continuing care arrangements
- Exercise, recreation activities, and leisure activities.

The philosophical goals include the removal of the addicted person from the environment that was associated with AOD use, the use of group processes to help break through patients' defenses, and to confront their problems using techniques based on the 12-Step program of AA. Throughout the process, several 12-Step-related activities occur: (1) education about the 12-Step programs, (2) 12-Step group meetings, (3) so-called "12-Step work," which involves "working through" the twelve steps.

During the 1980's, "traditional" chemical dependency treatment was the predominant approach for addicted employees at companies with employee assistance programs and health benefits that paid for addiction treatment. Over time, insurance companies became reluctant to pay for the traditional and somewhat arbitrary 28 or 30 days of expensive inpatient treatment, since the effectiveness and necessity of the 4 weeks of inpatient treatment were not proven with controlled studies. More recently, managed health care has emerged as a strategy for cost containment, continuing the current trend of a brief inpatient episode (if at all) followed by relatively inexpensive treatment settings, such as intensive outpatient levels of care. Similarly, the financial constraints of State-funded programs are reducing the available inpatient treatment days. As a result, patients treated at programs based on this approach often include (1) from none to several days of inpatient detoxification and initiation of biopsychosocial treatment services, (2) several weeks of intensive outpatient treatment, and (3) several months of nonintensive outpatient treatment (aftercare or continuing care).

Summary of Effectiveness. Participation in "traditional" chemical dependency treatment is related to improved treatment outcomes in several areas: measures of AOD use, vocational well-being, psychosocial functioning, and medical-legal status. As will be discussed later, the treatment setting (inpatient, intensive outpatient, or outpatient) is not a defining factor in treatment effectiveness. In particular, it appears that the inpatient hospitalization phase of "traditional" chemical dependency treatment is less important than the biopsychosocial approach and the provision of a continuum of services, especially continuing care and 12-Step program involvement. As with other treatment approaches, patients' improvements in specific areas are most likely when the programs provide services that specifically address those areas.

The Effectiveness of "Traditional" Chemical Dependency Treatment

Measures of *AOD* Use. Participation in "traditional" chemical dependency treatment, especially when it includes continuing care and active 12-Step participation is associated with improvements in several measures of AOD use. These include reductions in AOD use, reductions in AOD use frequency, increased rates of abstinence, and reductions in relapse rates.

Abstinence and relapse rates vary considerably, depending on the stringency of criteria used to define abstinence and relapse, the point at which abstinence is evaluated, the drug(s) of choice, gender of the patients, and other factors. Despite such differences, overall abstinence rates of about 50 percent and greater at one year after discharge are commonly reported.

Vocational Well- Being. "Traditional" chemical dependency treatment is associated with improvements in vocational well-being such as increased likelihood of employment, reduced absenteeism, reduced AOD-related work problems, and reduced job loss. Such treatment for minors appears to be associated with similar improvements in school participation.

Psychosocial Functioning. Participation in "traditional" chemical dependency treatment has been shown to improve psychological well-being as measured by healthy interpersonal functioning and social adjustments; prosocial social behavior; adoption of appropriate parental, spouse, or housemate roles; an increase in residential stability; and an increase in therapeutic supports.

Medical-Legal Status. Chemical dependency treatment appears to promote a reduction in legal problems as measured by reduced rates of arrest, traffic violations, and motor vehicle accidents. Such treatment also

reduces the likelihood of further hospitalization for addiction treatment, and is associated with decreases in posttreatment medical care utilization for expensive hospital services.

Research Highlights

- A CATOR evaluation of treatment outcomes of 8,087 patients in inpatient abstinence-based programs and 1,663 patients in outpatient abstinence-based programs, demonstrated notable treatment outcome benefits 1 year following treatment compared with 1 year before treatment. Patients experienced (1) decreases in posttreatment medical care utilization for expensive hospital services, (2) striking improvements in vocational functioning as indicated by a decrease in work problems, absenteeism, and working while under the influence, (3) dramatic declines in traffic violations and other arrests, (4) significant reduction in motor vehicle accidents (Hoffman and Miller, 1992).

  With regard to abstinence from AODs, this CA TOR evaluation estimated l-year abstinence rates of 60 percent for inpatients and 68 percent for outpatients who were available to follow-up. (When all noncontacted follow-up patients are assumed to have relapsed which is an unduly negative assumption, the l-year abstinence rates are estimated to be 34 percent for inpatients and 42 percent for outpatients.)

- Fink et al. (1985) evaluated the treatment effectiveness of 115 alcoholic patients who were randomly assigned to either intensive outpatient treatment or to a traditional inpatient chemical dependency hospital and followed for 2 years. Measures of effectiveness were evaluated in five areas: (1) drinking behavior (e.g., quantity-frequency, abstinence, hospitalizations), (2) life task performance (e.g., employment, absenteeism, job loss, arrests, and residential stability), (3) interpersonal functioning (e.g., social behavior, parent role, housemate role, spouse role, global assessment), (4) psychological well-being (e.g., positive and negative affect, life satisfaction, subjective well-being), and (5) life functioning (e.g., physical, psychological, vocational, and social health, therapeutic supports). There were marginal and primarily short- term differences in outcomes between the patients treated in an intensive outpatient and a traditional inpatient chemical dependency hospital. Both groups demonstrated marked improvements from baseline on almost all measures in the five health areas for the 2-year period

- A study by Alford, Koehler, and Leonard (1991) evaluated the effectiveness of a traditional chemical dependency treatment program with a strong AA orientation, for 157 male and female adolescents aged 13 through 19. At 6 months following discharge, 71 and 79 percent of the males and females, respectively, who completed treatment were abstinent or essentially abstinent. Abstinence rates at 1 year were 48 and 70 percent, and abstinence rates at 2 years were 40 and 61 percent. With regard to general behavioral functioning, at 6 months, 45 percent of treatment completers were both abstinent and successfully functioning in school or work and in family-social activities.

  Alford (1980) reported 2-year follow-up data for 56 alcoholic patients who completed 5 to 11 weeks at a traditional chemical dependency treatment program with a strong AA orientation. At 2 years, 51 percent were "essentially abstinent," 15 percent were "light-moderate" drinkers, and 13 percent were 'heavy-abusive" drinkers. Sixty-six percent were employed full time, 13 percent were employed part time, and 3 percent were unemployed of functioning below minimum standards. Nineteen percent were unknown. Fifty-eight percent were considered socially stable and functioning, 21 percent described as socially disrupted, and 21 percent were unknown. Among patients

completing the program, 49 percent were both abstinent and successfully functioning at two years. This rate increases to 56 percent if the light-moderate drinkers who were otherwise adaptively functioning are included

- *Rawson et al. (1990) conducted 1 -year follow-up assessments with a group of 65 patients receiving treatment for cocaine addiction in a traditional 28-day program. Forty-five percent of the cocaine addicted patients reported abstinence at the 1 -year follow-up. During the first year after discharge, 32 percent returned to monthly or more frequent cocaine use. An additional 23 percent returned to regular use of AODs.*

- *A study by Pettinati et al. (1982) accounted for 100 percent of 255 patients who were followed annually for 4 years after inpatient treatment. Collateral verification was obtained from significant others. Evidence of abstinence that allowed for a few slips was reported in 40, 45, 61, and 55 percent of cases at 1-, 2-, 3-, and 4year follow-ups, respectively.*

- *A study of 227 employees identified through an employee assistance program as having an alcohol problem that interfered with their work were randomly assigned to one of three conditions: (1) compulsory treatment in an abstinence-based chemical dependency treatment hospital for 3 weeks followed by 1 year of AA {three times weekly) and weekly checks with the employee assistance program staff, (2) compulsory attendance at AA between 3 and 7 days weekly for 1 year, and 1'3) a choice of options, which included the hospitalization condition, the AA condition, outpatient psychotherapy, or no help. The subjects participating in a traditional chemical dependency treatment program with 1 year of AA three times weekly exhibited superior treatment outcomes as evaluated by numerous measures of drinking and other drug use. Further, relapse rates were lowest among subjects in this treatment condition [Walsh et al., 1991).*

- *A randomized clinical trial by Keso and Salaspuro (1990) compared the treatment outcomes and other measures of 74 patients treated in a chemical dependency treatment program built on an AA-oriented Hazelden model with 67 patients treated in a traditionally Finnish treatment program, based on social work and psychiatric treatment. There was no continuing care in either condition. The Hazelden-based program resulted in superior 1 -year abstinence rates and experienced far fewer (7.9 percent) dropouts than the social-work program (25.9 percent). In addition, through the use of the Community Orien ted Programs Environment Scale questionnaire, the patients reported that the Hazelden-based program was more involving, supportive, encouraging to spontaneity, and oriented to personal problems than the other program.*

Outpatient "Drug-Free" Nonmethadone Treatment

Philosophy. Compared with methadone maintenance treatment, therapeutic communities, and "traditional" chemical dependency treatment approaches, outpatient nonmethadone treatment lacks a single core philosophy, save for the focus on treatment as a bridge from active use to abstinence. There are numerous models and types of programs and hence, a variety of philosophies. Most commonly, outpatient nonmethadone treatment programs emphasize counseling and training in social skills and concentrate on circumstances that support substance use.

Background. Initially conceived to meet community concerns about illicit drug addiction without assuming the large financial burdens of residential programs or the controversy of methadone maintenance treatment

programs, outpatient nonmethadone programs have historically been the least standardized form of drug addiction treatment. The primary goal of outpatient nonmethadone treatment programs is to serve as a treatment bridge from active use to abstinence. Many provide long-term treatment to support sobriety and prevent relapse.

This treatment approach has often been called "drug-free" or nonmethadone treatment to distinguish it from methadone maintenance treatment. However, since many such programs currently provide prescribed medications for acute and prolonged withdrawal symptoms, the name "drug-free" is outdated. Also, since nearly all such programs provide their services in an outpatient setting, the approach can be described as outpatient nonmethadone treatment.

Perhaps the most prominent feature of outpatient nonmethadone treatment programs is the focus on treatment services for counseling, addiction education, and training in social skills. Thus, patients are likely to receive individual **and/or** group counseling (or less likely, psychotherapy); group educational sessions about addiction, relapse, and AIDS prevention; and perhaps education and counseling for psychosocial skill enhancement and exploration of the life circumstances that promote ADD use.

Program models vary widely in terms of philosophy, staffing patterns, and setting. Some are **medically-** supervised programs that provide a wide range of medical components such as detoxification and overdose management, psychiatric management, general medical treatment, treatment and prevention of HIV/AIDS and sexually transmitted diseases, as well as treatment of general medical problems. Others have no or few medical components but provide significant psychosocial treatment components such as counseling and therapy. Through **onsite** services, case management, or referral, patients may have access to medical treatment, mental health treatment, family treatment, educational services, vocational and financial counseling, legal counseling, and other social services. The duration of outpatient nonmethadone treatment is generally brief.

When evaluating treatment effectiveness, one must recognize that outpatient nonmethadone treatment is a collection of dissimilar programs treating a wide variety of types of patients. As a result, research efforts and generalizations about treatment effectiveness are limited. Also, despite the popularity of this treatment approach, little rigorous research has been done. While a heterogeneous group, patients receiving outpatient nonmethadone treatment are generally not abusing opiates, usually not heavily involved in the criminal justice system, and include substantial numbers of people who abuse **AODs** but who are not addicted.

Summary of Effectiveness. Overall, patients who participate in outpatient "drug-free" nonmethadone treatment exhibit better behavior and superior biopsychosocial health during and following treatment than they did before entering treatment. The primary inference regarding the effectiveness of outpatient nonmethadone treatment is that patients who remain in treatment longer experience superior treatment outcomes than patients who remain in treatment for shorter periods. However, retention in outpatient nonmethadone treatment is poorer than for methadone maintenance treatment and therapeutic communities.

The Effectiveness of Outpatient Drug-Free Nonmethadone Treatment

Unfortunately, the bulk of knowledge regarding treatment effectiveness of outpatient nonmethadone treatment comes from the DARP and TOPS studies, which were conducted over a decade ago.

These studies indicated treatment improvements when measured by AOD use, illegal activity, vocational status, and retention in treatment. While short treatment episodes of less than 3 months were associated with poor treatment outcomes, longer lengths of treatment were associated with positive and significant outcomes.

Research Highlights

- *The DARP study revealed that patients receiving outpatient nonmethadone treatment exhibited statistically significant treatment improvements with regard to the use of opiates and nonopiates, and vocational issues (Sells, 1974a, 19746; Simpson, Savage, and Lloyd 1979; Simpson, 1981).*

- *The DARP study noted that outpatient nonmethadone treatment had similar retention results as therapeutic community treatment. Patients who remained in treatment less than 90 days showed no improvement relative to detoxification-only patients and in take-only subjects. In contrast, patients who stayed longer had improved outcomes on a composite score that incorporated drug use, criminal activity, and social productivity scales. For the patients who received more than 90 days of treatment, outcome scores were strongly and significantly correlated with total length of stay (Simpson, 1981).*

- *The TOPS study collected data on 1600 outpatient nonmethadone treatment patients admitted to 10 programs. Results indicated that patients in nonmethadone treatment programs exhibited considerable improvement over pretreatment status, although they did not do as well overall as patients treated in methadone maintenance and therapeutic community programs. For patients who remained in treatment at least 3 months, regular use of heroin and cocaine decreased by half from the year before treatment to the 3- to 5-year follow-ups. Over the same period involvement in illegal activity fell by nearly four-fifths, and full- time employment nearly doubled (Hubbard et al, 1984).*

- *The TOPS study indicated that posttreatment outcomes were strongly related to length of stay. Analyses suggest that the critical retention threshold is 6 months (Hubbard et al., 1989).*

- *The CAL DATA study revealed that following treatment, patients participating in outpatient nonmethadone treatment experienced a 43 percent decrease in the use of AODs and a 36 percent decrease in the mean number of drugs used Outpatient nonmethadone treatment patients experienced a 43 percent decrease in hospitalizations (for physical health, drug overdose, or mental health problems), and a 73 percent decrease in criminal behavior following treatment: Patients in treatment for 1 month or less experienced a 75 percent decrease, patients in treatment for 2 to 3 months experienced a 62 percent decrease, and patients in treatment 4 months or longer experienced a 79 percent decrease (Gerstein et al., 1994).*

Chapter Four: Treatment Settings

The previous section describe four primary addiction treatment approaches, that is, treatment efforts that are each organized around distinctive philosophies, techniques, and treatment goals. In addition, addiction treatment can be delivered in different types of environments or settings.

Addiction treatment **settings:**

- Inpatient hospitalization
- Residential treatment
- Intensive outpatient treatment
- Outpatient treatment

In some ways, the concept of treatment setting can be thought of as a continuum-from the most restrictive (inpatient treatment) to the least restrictive (outpatient treatment). Often, but not always, the treatment setting reflects the level of treatment intensity. That is, certain treatment settings permit a greater number of treatment components, staff attention, and time than other settings.

For example, inpatient treatment can provide 24-hour care, medical and nursing supervision, a controlled environment, and numerous treatment components. At the other end of the continuum, traditional outpatient treatment may include as little as 1 hour weekly of individual or group therapy. Thus, treatment setting can often describe not only the physical environment of the treatment services but also the intensity of treatment provided.

In the past, there were two primary treatment settings: inpatient and outpatient. Today, much of addiction treatment falls somewhere in between these two ends of the continuum. For example, intensive outpatient treatment can provide most of the same services provided in an inpatient program without requiring the patient to remain at the facility overnight.

Types of Treatment Settings. Ideally, a continuum of addiction treatment will provide adequate and appropriate treatment for patients at any stage of their addiction, treatment, and recovery. This continuum of treatment includes (1) inpatient hospitalization, (2) residential treatment, (3) intensive outpatient treatment, and (4) outpatient treatment.

Inpatient Hospitalization

The phrase *inpatient hospitalization treatment* describes the provision of medical (and often psychosocial) services within a hospital or similarly licensed facility designed to treat AOD problems. This level of care includes 24-hour observation, monitoring, and treatment by a multidisciplinary staff that includes physicians and nurses.

The forms of treatment include short-term detoxification, medical and psychiatric crisis management, psychosocial rehabilitation, or a combination of these. Inpatient hospitalization can be found in freestanding addiction treatment programs, addiction treatment programs within general medical hospitals and psychiatric hospitals, and programs that specialize in treating patients with both addiction and psychiatric disorders.

The clinical advantages of inpatient hospital treatment relate to the high level of medical supervision and safety for patients requiring intensive medical or psychiatric monitoring. This is especially critical for patients who are a danger to themselves or others. Also, the higher level of intensity may be beneficial to those patients who do not respond to lower levels of intensity.

increasingly, inpatient hospitalization has changed from global treatment to the management of specific high-risk problems. These include: (1) the medical management of withdrawal, especially detoxification from alcohol and other sedative-hypnotics, which can be accompanied by seizures, delirium, or death, (2) the medical management of biomedical crises and complications, (3) the psychiatric management of severe emotional or behavioral problems, (4) protection or containment of patients who have a particularly high risk for relapse or who live in an environment that is especially unsupportive of recovery.

Residential Treatment and living

The phrase *residential treatment* describes treatment programs that provide some type of 24-hour care, support, or both, for individuals who live on the premises of the program, generally for extended periods. The therapeutic community approach is a form of residential treatment. Since therapeutic communities have thoroughly integrated residential treatment and are discussed in the previous section, they will not be discussed here.

Another form of residential treatment are halfway houses, which are transitional living facilities that provide a supportive environment and rehabilitative services for individuals who have completed primary treatment but are not completely prepared to reenter the community without additional help.

There is a continuum of transitional living arrangements that include: (1) quarterway houses providing primary but less expensive social model rehabilitation, (2) halfway houses for those who require removal from the environment but not intensive medical services, and (3) extended care facilities for those who have completed primary treatment but are not ready to return to their original life situation.

Halfway houses are often small, homelike, and informal environments with open-door policies in which contacts between staff and patients take place in the context of shared responsibilities rather'than formal authoritarian structure. The staff are generally recovering individuals who provide both role modeling and support for sobriety. Residents are encouraged to seek employment.

The halfway house tends to be used by people with few social or environmental supports for sobriety. The house provides these supports, easing the transition from primary treatment to the community. Some are professionally staffed and provide formal treatment. Others provide little or no treatment, except for peer support and active 12-Step participation, often on site.

Intensive Outpatient Treatment

Intensive outpatient treatment combines aspects of both inpatient hospitalization and outpatient treatment. The phrase *intensive outpatient treatment* describes a form of addiction treatment that includes from at least 9 to 70 hours of treatment weekly, provided in an outpatient setting. That is, patients receive several treatment hours weekly, even 8 to 10 hours daily, but do not live on the premises. However, some intensive outpatient treatment programs require that patients reside in residential settings such as halfway houses.

Because intensive outpatient treatment can provide several treatment hours weekly, they can provide a wide range of treatment components. Such services include group therapy, pharmacotherapy, relapse prevention training, individual counseling, family involvement, and withdrawal management.

Intensive outpatient treatment programs vary widely with regard to the number of treatment hours and the hours of operation. Some models provide treatment from 3 to 8 or more hours per day, for 5 to 7 days per week. These are often called partial hospitalization programs. So-called evening programs provide treatment after working hours, such as from 6 p.m. to 9 p.m., from 3 to 7 days per week. Weekend programs provide several hours of treatment on Saturday and Sunday.

Intensive outpatient treatment can be established within or in association with homeless shelters, jails, prisons, hospitals, and halfway houses.

Outpatient Treatment

The phrase *outpatient addiction treatment* describes nonresidential addiction treatment services provided for patients who can adequately function in their usual living arrangements. Outpatient treatment generally involves regularly scheduled treatment sessions, but usually fewer than 9 hours per week. Examples include weekly or twice-weekly individual therapy, weekly group therapy, or a combination of the two-often in association with self-help participation. Outpatient treatment can also include pharmacotherapy, medical, nursing, psychosocial, and other clinical components. Aftercare or continuing care, which generally consists of weekly or twice-weekly group therapy, can be described as outpatient treatment.

As is true for inpatient and intensive outpatient treatment, outpatient treatment can be considered a continuum of intensity-from 1 to 8 hours of treatment weekly. The least intensive treatment is traditional outpatient treatment, which generally refers to weekly individual or group psychotherapy sessions, for a total of 1 to 2 hours of treatment weekly.

Treatment Setting and Effectiveness

There is much overlap between treatment approaches and treatment settings. For example, methadone maintenance treatment and nonmethadone “drug-free” treatment is invariably outpatient, and therapeutic communities have historically always been residential.

For these and other reasons, it is difficult to design treatment outcome research that can evaluate whether the treatment *setting* is the factor that resulted in effective or ineffective treatment within a specific treatment *approach.* Despite these methodological challenges, there has been some research regarding the effectiveness of addiction treatment-with regard to treatment setting and intensity. The following is a synopsis of this research.

- Research provides strong evidence that the general population of addicted patients experiences significant, meaningful, and positive changes in biopsychosocial functioning following addiction treatment, irrespective of the specific treatment setting.
- Research does not provide convincing evidence that the general population of addicted patients experience more or broader changes while receiving treatment in any particular setting.
- Research does not provide evidence of a clear relationship between the treatment setting and posttreatment outcomes for the general population of addicted patients.

- Research suggests that there are subgroups of patients who appear to respond optimally to treatment delivered in certain types of settings. For example, patients with greater severity of substance-related problems, less social stability, and greater psychiatric severity appear to benefit preferentially from inpatient treatment; patients with greater psychosocial stability and less substance-related impairment appear to benefit preferentially from nonhospital and nonresidential treatment.

- Research demonstrates that there is not a clear relationship between the type of treatment setting and the types and amounts of services provided to patients.

- Research suggests that there is a relationship between the services provided in addiction treatment, regardless of the setting, and posttreatment outcome.

- A review of the literature regarding treatment outcome and treatment setting reveals that there are large gaps in the areas studied. For example, the bulk of such research has focused on the treatment of alcoholism, comparisons of inpatient and outpatient treatment, and comparisons of inpatient with intensive outpatient.

Research Highlights:

- *Longabaugh et al. (1983) compared treatment outcomes of 174 alcoholic patients who were randomly assigned after detoxification to either a 14-day inpatient hospitahzation or a 15-weekday intensive outpatient (partial hospitalization) program. The patients participated in the same 5-day-per-week treatment, with inpatients remaining in an inpatient hospital setting, with inpatients completing 10.5 visits in addition to treatment received during their inpatient stay. With 87 percent participation in the 6 month follow-up, no significant differences were noted on measures of drinking, employment, or interpersonal functioning.*

- *The same research group examined treatment outcomes after 24 months in the areas of drinking behavior, life task performance, interpersonal and psychological functioning, and physical heath, as well as treatment costs (Fink et al., 1985). Of the original 174 patients, 59 subjects did not agree to participa te in the 18-month study extension. Thus, the 2-year follow-up study involved 115 patients. Both groups demonstrated marked improvements from baseline on almost all measures in the five health areas. Overall, there were few treatment outcome differences between the two groups, and differences that were noted were small and often disappeared by the end of the second year. While differences in clinical effectiveness were slight, differences in treatment costs were not. Financial savings experienced by patients receiving intensive outpatient treatment were preserved throughout the 2 years.*

- *An evaluation of the treatment outcomes of 8,087 patients in inpatient abstinence-based programs and 1,663 patients in outpatient abstinence-based programs-while not specifically designed to compare inpatient to outpatient settings-demonstrated similar patterns of treatment outcomes with regard to: (1) decreases in posttreatment medical care utilization for expensive hospital services, (2) improvements in vocational functioning as indicated by a decrease in work problems, absenteeism, and working while under the influence, (3) declines in traffic violations and other arrests, and (4) reduction in motor vehicle accidents {Hoffman and Miller, 1992).*

- Smart, Finley, and Funston (1977) studied the treatment outcomes of 114 detoxified alcoholics who entered inpatient, outpatient, or halfway settings. The patients were initially randomly assigned to a setting, but could choose to accept or reject the assignment or refuse treatment. Successful outcome was defined as greater than a 50 percent reduction in detoxification, arrest, or conviction. The study did not control for addiction severity. At 6-month follow-up, none of the halfway house patient were judged to be successful, compared with success rates of 25 percent among inpatients, 50 percent among outpatients, and 50 percent among subjects refusing treatment. Despite the violation of random assignment, the findings indicate comparable effectiveness of nonresidential settings when chosen by patients.

- McLachlan and Stein (1982) compared the treatment outcomes of patients in a 4-week inpatient program with those in an intensive outpatient program. With 97 of 100 alcoholics participating in the 12-month follow-up, there were no significant differences noted on any measure of treatment effectiveness, including AOD use, emotional adjustmen t, suicidal ideation, suicidal at tempts, marital communication, and assertiveness. Compared with their pretreatment year, patients in intensive outpatient treatment had 79 percent fewer days of hospitalization during the follow-up year, whereas patients in inpatient care showed a 38 percent increase in hospitalization days. Readmissions were less for pa tien ts in the day clinic settings than those in inpatient settings. The study did not control for addiction severity.

- Alterman and colleagues from the Penn-VA Center conducted two studies examining inpatient versus intensive outpatient treatment for alcohol and cocaine addiction (McLellan et al., 1992). In both of these studies, male alcohol- or cocaine-addicted patients from the VA Medical Center programs were evaluated at admission and 7 months later. There were no significant differences in outcome between the two groups. Those few trends that were shown indicated more favorable outcomes for the patients participating in the intensive outpatient program. There were similar findings with regard to adjustment in medical, employment, legal, family, and psychiatric function.

- Edwards and Guthrie (1966,1967) randomly assigned 40 patients to either inpatient treatment of 9 weeks average duration or outpatient treatment that averaged eight visits. As demonstrated in monthly assessments over 1 year, there were no significant differences on drinking and social adjustment measures, with outcome trends favoring the outpatient treatment group. Inpatients demonstrated greater use of the hospital during the follow-up period.

- Mosher et al. (1975) assigned 200 alcoholics receiving 9 days of inpatient detoxification plus outpatient care to one of two groups. One group received 3 weeks of inpatient treatment, and the second group did not. With regard to abstinence, drinking time, work status, drug use, or anxiety, no significant differences were noted at 3 months (91 percent participation) or 6 months (82 percent located). This was consistent with Willems, Letemendia, and Arroyave (1973) who conducted a 2-year follow-up study that compared short (mean length of stay 20 days) with long (mean length of stay 82 days) inpatient treatment of 62 alcoholic patients. No significant treatment outcome differences were demonstrated between the two groups. Overall, nearly 50 percent had been abstinent for 1 year preceding the follow-up point and two-thirds had shown considerable impro vemen t.

- Stein, Newton, and Bowman (1975) randomly assigned 58 alcoholic patients to receive, after detoxification, either aftercare alone or a 25-day inpatient program plus aftercare. No significant

differences were identified at 2, 4,7,10, or 13 months on measures including drinking, readmissions, psychological status, fife adjustment, or agency use. With 52 of 58 patients located at 13 months, 10 from the inpatient and 11 from the control group were found to be abstinent.

- *A recent study compared the types of treatment services provided to male cocaine and alcohol dependent patients in two treatment settings: (1) a I-month day treatment program that provided 27 hours of treatment from Monday through Friday and (2) a 1 -month inpatient hospital program that provided treatment from 7 a.m. through 9 p.m. on weekdays. In this study, the inpatient program provided more components to the cocaine subjects than the day treatment program. The inpatient subjects received more employment services and, to some extent, more medical services. The day treatment program showed greater differentiation of the services provided alcohol- versus cocaine-dependent patients than the inpatient program. Alcoholic day treatment patients. received significantly more ADD-related treatment services than did alcoholic inpatients. Also, the day treatment program provided more drug-related treatments to the cocaine subjects (Alterman and McLellan, 1993).*

Cautious interpretation. Conventional wisdom holds that inpatient treatment-the most intense treatment setting-is superior to other treatment settings. This seems plausible since the intensity and number of treatment components in inpatient settings are greater than those found in outpatient settings.

However, research-especially controlled studies with randomization-reveals a consistent trend suggesting addiction treatment in inpatient settings is not more effective than treatment provided in outpatient settings. Indeed, the bulk of controlled studies demonstrate one of two findings: that no statistically significant differences exist between settings or that differences favor less intensive settings.

These findings must be interpreted cautiously. Most treatment outcome studies that assess the role of treatment settings are also assessing global effectiveness for "general" addiction patients. There are few studies that evaluate the effectiveness of treatment setting with regard to differences in patient-specific factors such as addiction severity, drugs of abuse, suicidal ideations, and coexisting medical and psychiatric disorders.

Treatment Matching. While research suggests that there may be no overall advantage in treatment outcomes from hospital-based treatment programs compared with outpatient or intensive outpatient treatment, research does not exclude the possibility that certain groups of patients may receive particular benefits from such treatment methods.

Indeed, research suggests that inpatient or more intensive treatment may be particularly valuable for patients who are more severely addicted and socially unstable. Such patients may include patients who are homeless or unemployed, and those who have few social supports. In contrast, among less severe and more socially stable patients, outpatient and less intensive treatment yield more favorable outcomes (Kissin, Platz, and Su, 1970; Stinson et al., 1979; McLellan et al., 1983).

For example, McLellan et al. (1983) developed a decision-tree model that suggests the most appropriate treatment for patients based on psychiatric severity and other factors such as employment, legal, family, and drug use. In this model, patients with low psychiatric severity are recommended for outpatient treatment unless they have significant family or employment problems. Patients in the high psychiatric severity groups are recommended psychiatric treatment at either an inpatient program or an associated community clinic.

Patients in the mid psychiatric severity groups are recommended to particular treatment programs based on the pattern and severity of their other treatment problems at the time of admission. In a study based on this model, McLellan et al. (1983), assigned 130 alcohol- and 256 drug-addicted patients to treatment in their predicted optimal program (matched patients) or not to their predicted optimal program (mismatched patients). Matched patients exhibited superior performance during treatment and an average of 19 percent better 6-month outcomes than did their mismatched counterparts, across all treatment approaches and for both alcoholic and drug-addicted patients. More recently, McLellan et al. (1992) have developed a Treatment Services Review, a brief technician-administered interview that provides a quantitative profile of the number and types of treatment services received by patients during treatment. At the program level, this instrument may be useful in describing and comparing programs in terms of the nature and number of services delivered to patients. At the individual level, this instrument may offer a means of evaluating the match between a patient's needs and the services provided.

Current controlled research may indicate that certain patient characteristics are best suited for specific combinations of treatment approaches, settings, and components (Donovan and Mattson, 1994). For instance, Kosten, Morgan, and Kleber (1992) noted differences among cocaine addicts applying for inpatient or outpatient treatment. Compared with those applying for outpatient treatment, cocaine-addicted individuals applying for inpatient treatment reported (1) more days of cocaine use over the month prior to admission, (2) more years of abuse, (3) more attention deficit disorder, (4) more past suicidality, and (5) more current depression. In this example, evidence of greater psychopathology and severity of cocaine use may signal the need for increased likelihood of an inpatient setting.

Treatment Settings: Continuum of Care

In some ways, treatment outcome research that focuses on treatment setting promotes an artificial portrayal of treatment as being either inpatient or outpatient. From both a research and policy perspective, it is critical to consider the various treatment settings and approaches as part of a comprehensive continuum of care, rather than as competitive strategies.

Changing Treatment Needs. As mentioned earlier, addiction is a dynamic process. The obvious signs and symptoms of the disorder rise and fall over the course of time. Treatment and recovery are likewise dynamic processes. As a result, when patients participate in addiction treatment, their treatment needs will change.

Early in treatment, patients often need intense medical interventions, such as managing withdrawal, physical complications due to AOD use, or other, neglected medical crises. As these medical crises are addressed, other treatment needs are addressed, such as psychosocial crises and problems.

The resources required to provide these treatment needs are often associated with specific treatment settings. For instance, the optimal management of severe withdrawal from alcohol is conducted with ongoing medical supervision and close nursing care. Since management of severe withdrawal from alcohol can rapidly escalate into a medical emergency involving seizure and psychosis, it is often handled in a hospital. Similarly, patients who experience severe depression and pronounced suicidal thoughts because of a cocaine-alcohol withdrawal are generally initially treated in an inpatient setting to minimize the possibility of suicide.

In contrast, the management of mild to moderate AOD withdrawal and withdrawal-related depression is commonly conducted on an intensive outpatient basis. This typically begins with daily visits by patients to

programs for medications, medical and nursing observations, and psychosocial interventions. As detoxification is accomplished, the visits become less than daily, and the medical and medication focus is replaced by a biopsychosocial focus.

Similarly, patients who have completed the intensive phases of addiction treatment, and whose treatment needs can be met through a combination of weekly group therapy and regular AA participation, do not need intensive medical and nursing care. Since their treatment needs are less intense than before, their addiction treatment is less intense.

Chapter Five: Treatment Components

At each addiction treatment program, for each treatment approach, and within each treatment setting, there are treatment *components or* services-specific clinical interventions, strategies, and procedures that are provided to achieve specific treatment goals and objectives. Comprehensive treatment programs are those that provide numerous treatment components and can provide an intense level of treatment. Programs that offer few treatment components or services provide a low level of treatment intensity, and are most appropriate for patients who have few treatment needs.

Addiction treatment **components:**

Pharmacotherapies
Behavioral Relationship Therapy
Behavioral Contracting
Brief Intervention Treatment
Stress Management
Social Skills Training
Relapse Prevention
Employee Assistance Programs
Alcoholics Anonymous
individual Psychotherapy

In some cases, treatment components exist both within treatment programs and as stand-alone services. For example, family therapy exists both as a treatment component within addiction treatment programs as well as a stand-alone treatment service. Also, the same treatment component exists within numerous treatment approaches and settings. Thus, family therapy is a treatment component that is frequently offered within inpatient hospital treatment, intensive outpatient treatment, outpatient treatment, and therapeutic communities.

While there are numerous treatment components and services provided across the board in addiction treatment, a finite number have been shown by controlled research to be effective. Overall, two broad strategies are promising. First, research provides support for treatment components, such as medications that help to suppress AOD use, when accompanied by strategies designed to increase compliance. Second, there is strong evidence to support treatment components that teach alternative coping skills, including such services as behavioral relationship therapy, and social skills training.

Pharmacotherapies

There are two prominent strategies that use prescription medications expressly for the treatment of AOD addiction. *Antidipsotropic* medications cause noxious and adverse results when alcohol is consumed. Their intended effect is to suppress the consumption of alcohol. *Effect-altering* medications are intended to suppress substance use through diminishing the reinforcing and intoxicating properties of a specific substance of abuse.

Antidipsotropic Medications. The antidipsotropic agents, which are sometimes confused with aversion therapies, are prescribed medications that induce symptoms of illness (such as nausea) only following the use of the substances of abuse for which the antidipsotropic medications are designed to curb. In essence, these medications are used to prevent impulsive substance use. The reason why antidipsotropic medications are not considered aversion therapies relates to the clinical goal: ideally, the patient never uses the drug of abuse in the presence of the medication and thus does not experience conditioning.

These medications are considered adjuncts to a larger program of recovery, and not as the sole treatment for addiction. They are best viewed as one component of a multicomponent relapse prevention program.

At this time, antidipsotropic medications have been developed for alcohol but no other substances of abuse. Antidipsotropic medications for alcohol include disulfiram (Antabuse) and calcium carbamide. In the United States, only disulfiram is approved for use as an antidipsotropic medication.

Disulfiram. The most familiar and studied of antidipsotropic medications is disulfiram. Within the substantial body of research on disulfiram, there have been over 20 well-designed and controlled studies, and they are nearly evenly divided with regard to the effectiveness of disulfiram to prevent alcohol use.

The variability of outcomes suggests differential effectiveness based on research, treatment, and patient characteristics. In particular, the effectiveness of disulfiram appears to be related to (1) the motivation to take the medication, (2) compliance with treatment protocols, (3) frequent attendance tat least twice weekly) at a program, and (4) supervised administration of the medication.

Many studies of disulfiram involve patients who were given the medication to be consumed at home. They were encouraged to comply, but were offered little or no formal treatment. When provided under these circumstances, the medication is generally associated with poor treatment outcomes.

In contrast, research suggests that disulfiram therapy can be an effective adjunct to a comprehensive and integrated biopsychosocial treatment and recovery program, especially when there are therapeutic techniques designed to: (1) help patients adhere to disulfiram regimen, 12) increase patients' motivation for compliance, and (3) promote relapse prevention. Under such conditions, disulfiram therapy can, for many patients, be an effective treatment adjunct to (1) improve program retention, (2) prolong abstinence, and (3) reduce drinking frequency after relapse.

Research Highlights:

- *In perhaps the largest and most rigorous controlled study, Fuller et al. (1986) conducted a blinded multicenter clinical trial evaluating the effectiveness of disulfrram, replicating their own previous research in a nine-site assessment. In this outpatient study, 605 alcoholic men were randomly assigned to receive either: (1) therapeutic doses of 250 my disulfrram, (2) inert I-my doses of disulfrram (as a control for the threat of the disulfiram-ethanol reaction), or (3) a vitamin supplement- without disulfiram (as a control for counseling that all groups received. Over the 12-month follow-up period the three groups did not differ on measures of total abstinence, time to first drink, social stability, or employment. Most patients did not take disulfrram regularly. There was a significant relationship between medication compliance and abstinence in all groups. However, in almost half of the patients who drank, those given therapeutic doses of disulfiram reported significantly fewer drinking days than patients in the other two groups. In other words, disulfiram reduced drinking frequency after relapse.*

- *Keane et al. (1984) examined the effects of spouse contracting to increase disulfiram compliance among 25 patients who had been treated in a 4week inpatient treatment program and who lived with a significant other-generally a spouse. The spouse contracting involved consuming the disulfiram in the presence of a significant other and documenting the event in writing on a contract. The three conditions were (1) no contract and no recording, (2) contract and recording, (3) contract and recording plus instructions for positive reinforcement. At the end of the 3-month period for which the disulfiram was prescribed those patients who were involved in contracting and recording*

reached criterion more frequently than those in the minimal treatment group. Also, 84 percent of this group were abstinent at the 3-month follow-up.

- Azrin and colleagues (1982) randomly assigned 43 patients to either: (1) traditional disulfiram treatment, which included encouragement to take the medication and five counseling sessions with films and written education about alcoholism, (2) a Disulfiram Assurance Group, which included training specific to adhering to the disulfiram regimen, such as taking it at a set time, place, and in the presence of a significant other, as well as role-play exercises with significant others designed to increase motivation for compliance, and (3) a Behavior Therapy Plus Disulfiram Assurance Group, that included the protocol used in the Disulfiram Assurance Group plus behavioral training. The behavioral training included instructions in refusing offered drinks, muscle relaxation training to control urges to drink, training in positive methods of dealing with difficult social situations that had previously led to drinking, advice on social and recreational activities, and employment and relationship counseling if appropriate. At the 6-month follow-up, the traditional treatment patients were drinking on most days and no longer taking the medication. The Disulfiram Assurance treatment resulted in almost total sobriety for married or cohabitating patients, but had little benefit for the single patients. The combined program produced near- total sobriety for the single and married patients. This group exhibited superior results when measured by number of days drinking, number of days intoxicated number of ounces of alcohol per drinking episode, and time away from home or institutionalized.

- In a study of disulfiram compliance, 43 subjects were randomly assigned to one of three conditions related to chemical monitoring (Kofoed, 1987). Group A received prescriptions for disulfiram and attended outpatient group treatment one to two times weekly, but their disulfiram use was not chemically monitored Group B underwent the same treatment procedures and were chemically monitored once weekly for disulfiram; however, the results of the test were kept confidential from all clinical staff Group C experienced the same treatment and were chemically monitored and the results were communicated to the patients' case managers. Disulfiram noncompliance was addressed with individual and group discussion in the context of personal responsibility motivation, and relapse. Based on the Drinking Behavior Interview (DBI) scores, compliance rates were 44 percent in group B and 71 percent in group C. However, examination of treatment process measures (average monthly DBI score during treatment, final DBI score, and number of irregular discharges) revealed no significant differences between the three groups. This study suggests that chemical monitoring increases patients' compliance with disulfiram therapy but that increased disulfiram compliance does not correlate with improvements in other aspects of treatment compliance.

- Of 20 alcoholic volunteers primarily from a skid row area, disulfiram implants compared to placebo implants in a double-blind study resulted in no differences in immediate abstinence following surgical implantation, but the disulfiram group was more abstinent in a 2-year follow-up. The study concludes that there is an immediate psychological (placebo) effect, but the long-term differences resulted from a pharmacological deterrent effect (Wilson et al., 1978).

- A study of 100 volunteers drawn primarily from a skid Row alcoholic population compared disulfiram with placebo implants to two groups of controls (one group of 10 randomly assigned volunteers and one pseudo-control group of 10 who refused implants) in a double-blind study (Wilson et al., 1980). The disulfiram group achieved the longest period of abstinence, but both the disulfiram and the placebo implants had much more extensive

average periods of abstinence (361 and 307 days respectively) than the two control groups (24 and 31 days).

- *Disulfiram implants were compared among 45 male alcoholics admitted to an alcoholic unit with an average 6-week hospital stay. Both the implant (22 patients) and the control group (23 patients) had a history of prior hospital admissions and an average of less than 2 months abstinence during an average of 11 years of heavy drinking. The implant group had a longer period of abstinence (average of 5.4 months) than the control group (1.9 months) following discharge. The study concludes that the increased period of abstinence can be used as an adjunct to therapy to develop better ways of coping (Whyte and O'Brien, 1974).*

Effect-Altering Medications. Effect-altering medications are used to diminish or block the euphoric and reinforcing aspects of substances of abuse without causing any prominent effect itself, and without causing noxious and aversive symptoms. Thus, when patients are maintained on effect-altering medications and consume the drug of abuse for which the effect-altering medication is designed to effect, they do not experience the euphoric or mood-altering effects of the drug of abuse. The philosophical basis of effect-altering medications is that by blocking the euphoric and reinforcing effects of the drug of abuse, the strong bond between the drug of abuse and the reinforcing properties is broken or weakened, thus decreasing the likelihood of future use.

The prototype effect-altering medication is naltrexone (Trexan), which was developed to block the effects of opioids. The efficacy of various medications in blocking the pharmacologic and behavioral effects of alcohol and the benzodiazepines is being evaluated; their use is experimental at present.

Naltrexone-For Opioid Addiction. Chemically related to naloxone (Narcan), naltrexone (Trexan) is a pure opioid antagonist that removes opioids that currently occupy opioid receptor sites, and blocks opioids from occupying opioid receptor sites. In other words, administering naltrexone to someone who has already injected or consumed an opioid will result in a reversal of the opioid activity; administering an opioid to someone who has already been administered naltrexone will result in no significant opioid effect.

Naltrexone does not produce mood-altering effects, is not addictive, has no street value, is not subject to abuse, and the side effects are minimal for most people.

In the treatment of opioid addiction, naltrexone is used to block the effects of impulsive opioid use. In a person who is maintained on naltrexone, the use of heroin or other opioids has essentially no effect: no euphoria and no analgesia. Once induced on naltrexone, patients generally cease craving and using opioids, in part due to their awareness that it is impossible to experience an opioid-induced mood alteration.

Naltrexone cannot be administered to patients as long as opioids are present in their systems. An opioid-free interval is necessary to avoid a naltrexone-induced opioid withdrawal. The interval for heroin is 5-7 days; for methadone, 10-14 days. So-called "street addicts" and methadone maintenance patients are less likely to begin naltrexone treatment because of an inability to complete detoxification or to remain opioid-free prior to naltrexone induction.

Naltrexone appears to work best for patients who are involved in meaningful relationships with nonaddicted partners, employed full-time, or attending school and living with family members. It has been effective with

highly-motivated patients such as licensed health care professionals and former prisoners on probation, and during transition periods such as leaving a therapeutic community.

Naltrexone—For Alcohol Addiction. In this document, the phrase "effect-altering medications" describes medications used to diminish or block the euphoric and reinforcing aspects of substance of abuse. While naltrexone has is a pure opioid antagonist, and thus an effect-altering medication for opioids, it has been approved by the Food and Drug Administration for use with alcoholic patients.

Animal research has shown that alcohol consumption affects the endogenous or. natural opioid system, and that alterations in opioid receptor activity influence alcohol consumption. Although these effects are complex and incompletely understood, it appears that naltrexone may be a helpful adjunct in the treatment of alcohol addiction as well as for alcohol relapse prevention. In particular, clinical research has shown that alcoholic patients treated with naltrexone experience a decrease in alcohol craving, an increase in abstention rates, and reductions in number of drinking days, severity of alcohol-related problems, and relapse rates.

Research Highlights:

- *Lerner et al.(1992) conducted a double-blind study of 31 newly-abstinent patients who underwent opioid free detoxification. fifteen were prescribed naltrexone for 2 months, and 16 were provided with placebo for the same period The patients were followed for 1 year. Naltrexone did not appear to be superior to the placebo with regards to retention rate. In the Naltrexone group (n = 15), 3 finished the 2-month treatment, and 8 remained opioid- free for 1 year. In the placebo group (n =16), 8 finished the 2 month trial and 6 remained opioid- free for a year. The retention rate registered during the course of the study, as well as during the follow-up year; correlated with a patient profile de fined by good social functioning and stable relationships.*

- *Shufman et al. (1994) conducted a double-blind controlled study in which the efficacy of naltrexone was compared to placebo, given to 32 opioid addicts as part of a general treatment plan of 12 weeks duration. Fifty milligrams of naltrexone were taken orally three times weekly (25 my twice a week for the first 2 weeks). The follow-up procedure included an interview, urine tests, and screening for possible adverse effects. In addition, social and psychological parameters were evaluated Fewer heroin-positive urine tests were found the naltrexone group than in the placebo group. Throughout the entire study, the number of drug- free patients in the naltrexone group was higher than in the placebo group. The naltrexone group showed a significant improvement in most psychological parameters as compared with the placebo group. No differences were found in compliance or ratio of adverse effects between the naltrexone and placebo groups.*

- *A study evaluated opioid-addic ted individuals on probation from Federal prisons- who risked incarceration upon relapse-using an open, randomized control group design. The group receiving naltrexone also received twice weekly counseling and monitoring. The 6-month retention rate for the naltrexone group was about 50 percent. Importantly, 62 percent of the control group but only 33 percent of the naltrexone group were incarcerated prior to the completion of their 6-month study period (Metzger et al.,1990; Tilly et al., 1992).*

- *Volpicelli et al. (1992) conducted a placebo-controlled randomize4 double-blind study of 70 alcoholic patients. Two groups of 35 patients received either naltrexone 150 my daily) or placebo for 12 weeks while participating in group therapy twice weekly after completing 4 weeks of intensive*

outpatient treatment. Twenty-one of the placebo group and 24 of the naltrexone patients completed the 12-week study. The naltrexone group had a significantly greater decrease in the measure of craving, reported fewer drinking days, and a smaller percentage of relapse. Twenty three percent of the naltrexone subjects relapsed compared with 54.3 percent of the placebo group. Fewer of the naltrexone-treated group continued to drink and relapse after brief slips.

- *O'Malley et al, (1992) conducted a double-blind placebo-controlled study that evaluated naltrexone and two psychotherapies (utilizing manuals) in the treatment of alcohol addiction. Ninety-seven alcohol-dependent patients were randomized to receive for 12 weeks either naltrexone or placebo and either coping skills and relapse prevention or a supportive therapy designed to support the patients own efforts at abstinence without teaching specific coping skills. Naltrexone proved superior to placebo in measures of drinking and alcohol-related problems, including abstention rates, number of drinking days, relapse, and severity of alcohol-related problems. Medication interacted with the type of psychotherapy received The cumulative rate of abstinence was highest for patients treated with naltrexone and supportive therapy. For those patients who initiated drinking, however patients who received naltrexone and coping skills therapy were the least likely to relapse.*

Replacement and Maintenance Medications. Substitution and maintenance approaches, such as methadone maintenance treatment, do not merely involve the use of medication to replace the substance of abuse but ideally provide methadone within the context of a broad range of biopsychosocial treatment services. Thus, the section on methadone maintenance treatment at the beginning of this document describes methadone maintenance treatment as a comprehensive treatment approach, and does not focus on methadone the medication.

However, there are medications other than methadone that have promise as medications for substitution and maintenance. At this point, research suggests that such medications are limited to the treatment of addiction to opioids and nicotine.

LAAM. Among opioid substitution and maintenance treatment programs, methadone is the predominant medication used for opioid substitution. However, since it was approved for the treatment of opioid addiction in 1993, there has been great interest in using levo-alpha-acetylmethadol (LAAM) in maintenance treatment programs. Over 100 opioid maintenance treatment programs currently dispense LAAM.

A synthetic opioid and chemical relative of methadone, LAAM produces analgesic morphine-like effects when orally administered. LAAM has a slower onset and longer duration of action than methadone. It can suppress opioid withdrawal for up to 72 hours, permitting three-times-per-week dosing. Because of the delayed onset and long duration of action, and because it is more effective orally than through injection, LAAM is less subject to abuse than is methadone. The required three visits per week can increase a program's capacity, reduce patients' feelings of dependency on clinics, and make patients feel less restricted by the treatment.

Studies comparing LAAM with methadone generally reveal few differences between the medications with respect to clinic attendance, patient reports of opioid withdrawal symptoms, illicit drug use, employment status, criminal activity, overall effectiveness, and medical safety.

Research Highlights:

- The Veterans Administration Cooperative Study was conducted at 12 different treatment sites (Ling et al., 1976). The study involved 430 patients who were randomly assigned to one of three groups: 146 patients received methadone 50 mg, 142 patients received methadone 100 mg, and 142 patients received LAAM 80 mg. This double-blind study specified a 40-week treatment period LAAM was administered three times weekly, with a placebo given on non-drug days, and methadone was administered daily. Of the total population, 42 percent completed 40 weeks of treatment. A higher percentage of the patients who received 80 mg LAAM (69 percent) terminated early, in comparison to 58 percent for the methadone 50 mg and methadone 100 mg groups. After the 32 week of treatment, LAAM patients used significantly less opioids than either group of methadone patients, especially those in the methadone 50 mg group. Also, during the last 8 weeks of the study, while the subjects in the LAAM group maintained a steady level with a slight decline in the percentage of positive urine toxicology screens, subjects in the methadone 100 mg group showed a moderate increase.

- The SAODAP study included 636 patients from 16 clinics and was designed to assess the feasibihty of crossing patients over from methadone to LAAM (Ling, Klett, and Gillis, 1978). All patients in the study had been stabilized on methadone for 3 months. The 328 patients who were randomly assigned to the LAAM group were crossed over to LAAM at the same dosage equivalent as their methadone. Dosages were subsequently adjusted according to physical dependence or individual needs. This open trial study was based on a 40-week protocol. Of the study population, 49 percent completed the 40 weeks, with the differential premature dropout rate being 60 percent from the LAAM group and 39 percent from the methadone group. In the use of illicit drugs, as measured by urine toxicology screens, LAAM and methadone subjects were comparable. However, on global evaluation ratings by staff LAAM patients were rated as superior on four out of eight parameters: employment/education, drug abuse, psychiatric problems, and overall adjustment.

- After completing the 40-week protocol of the Ling, Klett, and Gillis (1978) study, a follow-up study was conducted fling and Blaine, 1979). Patients were offered the option of extending the period of assessment from 40 to 80 weeks. Patients could remain on their current medication or cross over to the alternate treatment medication. Of the 274 patients willing to participate in the follow-up study (from a potential population of 314), 96 percent of the LAAM patients opted to continue using LAAM and 80 percent of the methadone patients chose to continue using methadone.

- Tennant et al. (1986) conducted a large open trial in a network of eight clinics in which 959 patients enrolled in LAAM treatment when it was offered as a treatment option in a fee-for-service clinic. Patients entering treatment with LAAM decreased their opiate use in a magnitude comparable to the response to methadone. Patients transferring from methadone maintenance treatment appeared to perform equally as well as patients entering LAAM treatment from street heroin use. The two reasons given by patients for preferring LAAM over methadone were the requirement to attend the clinic less often (67 percent) and that LAAM "holds" better (43 percent}. Thirty-nine percent stated that LAAM treatment was unsatisfactory.

Buprenorphine. An opioid mixed agonist-antagonist, buprenorphine has characteristics of methadone, LAAM, and naltrexone, having both agonist (methadone-like) and antagonist (naltrexone-like) actions. That is, buprenorphine blocks opioid withdrawal and diminishes opioid cravings, but it also decreases the euphoric and

reinforcing effects of other opioids similar to the pure opioid antagonist naltrexone. Buprenorphine is being studied and used for opioid detoxification and maintenance.

Buprenorphine appears to be comparable to methadone in its ability to suppress opioid withdrawal, retain patients in treatment, and decrease illicit opioid use. It has a better safety profile than methadone and a very mild withdrawal following abrupt cessation. Thus, discontinuation from buprenorphine is easier than detoxification from methadone (Blaine, 1992). Buprenorphine can be substituted for reasonable doses of heroin or methadone in dependent persons and can be subsequently withdrawn without undue discomfort and with excellent safety. Buprenorphine could be an effective agent for detoxification as well as maintenance.

Patients can receive low doses of naltrexone while still receiving buprenorphine, and not experience naltrexone-induced withdrawal symptoms. In contrast, methadone-maintained patients would experience profound opioid withdrawal if they received even low doses of naltrexone. As a result, buprenorphine appears to be effective as a medication to help patients make the transition from opioids such as heroin and methadone to the opioid antagonist naltrexone.

Buprenorphine has also been evaluated for its role in the treatment of patients who are addicted to both opioids and cocaine. Some, but not all, studies have suggested that buprenorphine treatment may be associated with significantly less cocaine abuse than treatment with methadone maintenance. While many studies demonstrate equivalent effectiveness for buprenorphine and methadone for such patients, some studies suggest that the efficacy of buprenorphine for combined opioid-cocaine addiction may be dose-dependent. Research has demonstrated a larger reduction in cocaine abuse at 4 and 6 mg than at 2 mg daily of buprenorphine.

Research Highlights:

- *A 180-day study of 150 outpatients compared the effectiveness of sublingual buprenorphine with methadone at 20 and 60 mg. All subjects received weekly individual relapse prevention counseling. During the 17 weeks of the maintenance phase of the study, buprenorphine and methadone 60 mg were better than methadone 20 mg with respect to the number of opiate-negative urine samples submitted (Johnson, Fudala, and Jaffe, 1991).*

- *In a study by Kosten et al. (1993), buprenorphine at 2 mg and 6 mg daily was compared with methadone at 35 mg and 65 mg during 24 weeks of maintenance among 125 opioid-addicted patients. As hypothesized 6 mg of buprenorphine were superior to 2 mg of buprenorphine in reducing illicit opioid use, but higher dosage did not improve treatment retention. Self-reported illicit opioid use declined substantially in all groups, but by the third month, significantly more heroin abuse was reported at 2 mg than at 6 mg of buprenorphine or of methadone. From an initial average of $1860/month, month 3 usage dropped to $41 [methadone 65 mg), $73 fmethadone 35 mg), $118 fbuprenorphine 6 mg), and $351/month fbuprenorphine 2 mg). Days of use also dropped from 29 days to 1.7 fmethadone 65 mg), 2.8 [methadone 35 mg), 4.0 fbuprenorphine 6 mg), and 6.6 days/month fbuprenorphine 2 mg). Treatment retention was significantly better on methadone (20 vs. 16 weeks), and methadone patients had significantly more opioid-free urines (51 percent vs. 26 percent). Abstinence for at least 3 weeks was also more common on methadone than buprenorphine (65 percent vs. 27 percent).*

- In a study by Resnick et al. (1992), 85 heroin addicts who were unwilling to receive methadone maintenance treatment or enter therapeutic communities were assessed single-blind for the lowest sublingual dose of buprenorphine that blocked heroin craving (8.0 my max). All doses were administered daily under observation. After maintenance for 4 to 12 weeks, subjects entered a double-blind discontinuation trial and were randomly assigned to receive dose reductions (10% twice weekly for 5 weeks to zero dose, then placebo for 2 weeks) or a stable dose for 7 weeks. Subjects were terminated from discontinuation if heroin was used or they had increased symptoms of craving. A wide dose range (1.5-8.0 my/day) was effective in reducing heroin craving and use. Of 73 subjects who received buprenorphine for 4 to 52 weeks, 40 had no prior treatment, despite high levels and many years of dependence. Subjects who received dose reductions developed abstinence symptoms, especially low energy, and drug-seeking behavior. The discontinuation trial outcome (n = 51) showed a highly significant difference between 29 subjects who received dose reductions (28 terminated 1 completed) and 22 subjects who received no dose reductions (3 terminated 19 completed). The findings suggest that buprenorphine could be an important medication for reducing demand for heroin by many heroin addicts who remain outside the present health-care system.

  To compare the efficacy of buprenorphine and methadone in the treatment of opioid dependence, Strain et al. (1994a) randomly assigned 164 relatively treatment-naive, opioid-addicted patients to either methadone or buprenorphine conditions in a 26-week treatment program. Dosing was double-blind and double-dummy. Patients were stabilized on a regimen of either methadone 50 at my or buprenorphine at 8 my, with dose changes possible through week 16 of treatment. Urine samples were collected three times weekly, and weekly counseling was provided Buprenorphine (mean dose = 8.9 my/day) and methadone {mean dose = 54 my/day) were equally effective in sustaining retention in treatment, compliance with medication, and counseling regimens. In both groups, 56% of patients remained in treatment through the 16-week flexible dosing period. Overall opioid-positive urine sample rates were 55% and 47% for buprenorphine and methadone groups, respectively; cocaine-positive urine sample rates were 70% and 58%. Evidence was obtained for the effectiveness of dose increases in suppressing opioid but not cocaine, use among those who received dose increases.

- To assess the efficacy of buprenorphine for short- term opioid maintenance and detoxification, Johnson, Jaffe, and Fudala (1992) conducted a randomized double-blind parallel group study comparing buprenorphine at 8 my/day, methadone at 60 my/day, and methadone at 20 my/day, in a 17- week maintenance phase followed by an 8-week detoxification phase. The 162 opioid-addicted patients were offered but not required to accept counseling in a relapse prevention model in addition to the medication. Throughout the maintenance phase, retention rates were significantly greater for buprenorphine (42 percent) than for methadone at 20 mg/day (20 percent); the percentage of urine samples negative for opioids was significantly greater for buprenorphine (53 percent) and methadone at 60 mg/day (44 percent) than for methadone at 20 mg/day (29 percent). Failure to maintain abstinence during the maintenance phase was significantly greater for methadone at 20 mg/day than for buprenorphine. During the detoxification phase, no differences were observed between groups with respect to urine samples negative for opioids. For the entire 25 weeks, retention rates for buprenorphine (30 percent) and methadone at 60 mg/day (20 percent) were significantly greater than for methadone at 20 mg/day (6 percent). All treatments were well tolerated with similar profiles of self-reported adverse effects, The percentages of patients who received counseling did not differ between groups. Overall, buprenorphine was as effective as methadone at 60 my/day, and both

were superior to methadone at 20 mg/day, in reducing illicit opioid use and maintaining patients in treatment for 25 weeks.

- In a study by Nigan, Ray, and Tripath (1993), the clinical efficacy of buprenorphine in controlbng withdrawal symptoms was compared against clonidine among 44 opiate dependent males. Subjective and objective withdrawal symptoms were assessed by withdrawal rating scales daily for 10 days. The subjects were randomly assigned to fixed dose schedule of either buprenorphine (0.6-1.2 mg per day, sublingually) or clonidine (0.3-0. 9 mg per day, oral) for 10 days. Buprenorphine was found superior to clonidine in alleviating most of the subjective and objective opiate withdrawal symptoms. Subjective symptoms declined earlier among the subjects receiving buprenorphine. No untoward side-effects of buprenorphine were noticed

- In a 30-day outpatient trial, 41 opioid-addic ted patients were discontinued from either methadone maintenance or street heroin and were started on sublingual buprenorphine within 24 hours of their last dose. Withdrawal symptoms were rated daily by a clinician, and urine analyses were randomly obtained twice weekly. The patients generally experienced minimal withdrawal symptoms while maintained on buprenorphine. They showed good retention and reductions in illicit opioid use. Illicit opioid use declined from 33 percent in week 1 to 19 percent in week 4. Unexpectedly, the study subjects had a 3 percent rate of cocaine urine toxicologies, which was substantially less than the 30- to 40-percent rates noted in the authors' methadone maintenance treatment program. A subset of 10 patients was successfully inducted on to naltrexone without precipitating withdrawal symptoms (Kosten, Morgan, and Kleber, 1992).

- An open blind outpatient study evaluated the effects of buprenorphine on 15 patients who had used intravenous heroin daily for 2 years and cocaine an average of 53 days per week. Treatment retention of this severely addicted group was 87 percent over 20 weeks mean duration. Urine screens were negative more than 50 percent of the time for both heroin and cocaine. Daily self-reports of drug use revealed a mean decrease from 7 to less than 1 day per week for heroin and from 53 to less than 1 day per week for cocaine (Gastfriend et al., 1991).

- A study by Strain et al. (1994b) compared the efficacy of buprenorphine to methadone for decreasing cocaine use in patients with combined opioid and cocaine use. fifty-one patients were enrolled in a 26-week treatment program and randomly assigned to either buprenorphine or methadone. Dosing was double-blind and double-dummy. Patients were stabilized on either 8 mg sublingual buprenorphine or 50 mg oral methadone, with dose increases given in response to continued illicit cocaine use or opioid use through week 16 of treatment. Maximum doses possible were 16 mg buprenorphine and 90 mg methadone. Average doses achieved were 1 1.2 mg buprenorphine and 66.6 mg methadone; 49% of the patients received the maximum doses possible. Urine samples were collected three times per week, and there was no significant difference in the rate of cocaine positive urines for the intent- to- treat sample 169% for buprenorphine versus 63% for methadone). For patients who remained in treatment through the flexible dosing period (n = 28), there were significant decreases in cocaine positive urines over time but no significant differences between groups or group times time effects. Buprenorphine and methadone were equally effective on measures of treatment retention, urine results for opioids, and compliance with attendance and counseling. These results demonstrate no selective efficacy of either buprenorphine or methadone in attenuating cocaine use in this population, but do provide further support for the equivalent efficacy of buprenorphine and methadone in the treatment of opioid dependence.

Nicotine. Two primary systems are used for the substitution, maintenance, and reduction of nicotine: nicotine gum and transdermal nicotine patches. The primary goal of nicotine replacement systems is to substitute the smoked nicotine with nicotine provided in a safer and smoke-free nicotine delivery system, followed by a systematic reduction of nicotine levels.

With regard to *nicotine chewing gum,* findings are consistent across studies: nicotine gum treatment is more effective than placebo treatment, and nicotine gum treatment combined with behavior therapy is more effective than either treatment alone. Even in studies involving physician intervention in which compliance and outcomes are poor, nicotine gum is more effective than advice to quit alone.

In general, nicotine gum treatment works well in specialized clinics and in research settings. Outside of such settings, problems are common, such as physicians not prescribing it properly, especially underdosing, users not receiving extensive instructions in the proper use of the gum, and especially, and patients' lack of motivation.

The efficacy of nicotine gum treatment is enhanced: (1) when the gum is one part of a comprehensive biopsychosocial treatment approach, especially at a specialized program; (2) when patients receive clear instructions regarding the use of the gum and injunctions against simultaneous smoking; (3) when patients avoid consuming acidic substances while chewing nicotine gum.

Nicotine can be delivered through *transdermal nicotine patches,* which have several advantages, including: (1) a steady administration of nicotine, (2) ease of use and good compliance, (3) absence of nicotine gum-related side effects (bad taste, nausea, hiccups, and dental concerns), and (4) physician willingness to prescribe. Like nicotine gum, nicotine transdermal patches are superior to placebo regarding smoking cessation and work best in the context of a comprehensive biopsychosocial treatment program.

For treatment involving nicotine gum or transdermal patches, success rates are generally best during the first weeks and months of treatment. Treatment efficacy often fades after several months, but can be enhanced with the provision of relapse prevention training several months into treatment.

Research Highlights:

- *A meta-analysis of* 14 *randomized controlled studies of motivated smokers seeking services at smoking cessation clinics revealed success rates of 27 percent at 6 months for nicotine gum treatment compared with an 18 percent rate for patients receiving placebo (Lam et al., 1987).*

- *In a double-blind randomized placebo-controlled study of 206 subjects at a hospital-based smoking clinic, the I-year lapse-free abstinence rates were 29 percent with nicotine gum and 16 percent with placebo (Hjalmarson et al., 1984).*

- *In a double-blind randomized placebo-controlled study of 116 subjects, the I-year success rates were 47 percent for the nicotine gum group and 21 percent for the control group; I-year lapse free abstinence rates were 31 percent with nicotine gum and 14 percent with placebo (Jarvis et al., 1982).*

- *A review of 11 placebo-controlled double-blind nicotine patch clinical trials revealed that short-term cigarette quit rates among active nicotine patch users are about twice those of placebo patch users.*

Most clinical studies demonstrate that nicotine patches retain their advantage over placebo patches for 6 months or longer. Overall success rates at 6 months ranged from 22 percent to 42 percent among active patch users, compared with 5 percent to 28 percent among placebo patch users (Fiore et al., 1992).

Behavioral Relationship Therapy

There is a strong association between healthy family adjustment and positive addiction treatment outcomes. This suggests that addiction treatment outcomes may be improved through the use of interventions designed to improve the healthy functioning of families and couples. Indeed, the mere assignment of a couple to a marital therapy condition (versus treatment in which the spouse is not fully involved) within the context of addiction treatment is predictive of retention in addiction treatment (Noel et al., 1987).

The overall goal of relationship therapies is to promote sobriety by improving the quality of family, marital, and other relationships. *Behavioral relationship therapy* generally focuses on teaching and improving communication skills, improving problem solving among family members, and increasing the frequency of positive reinforcement within relationships. Treatment may include a couple or a family with a therapist (conjoint therapy) or several couples or families in a group session with one or two therapists (multifamily group therapy).

While there are other types of relationship therapies, behavioral relationship therapy is described here because the effectiveness of the approach and the quality of outcome studies regarding this treatment component are quite high.

Research suggests that behavioral relationship therapy is superior to individual therapy and to other types of relationship therapies. Spouse involvement in treatment yields better results than treatment without spouse involvement, and relationship therapy both during and following addiction treatment improves treatment outcomes. Even unilateral behavioral marital therapy (treating the spouse without the addicted person) has been found to increase the addicted patient's motivation for treatment. Behavioral relationship therapy can improve the quality of interpersonal relationships and have a positive impact on an individual's addiction treatment.

Research suggests that behavioral relationship therapy can promote more rapid reductions in substance use and enhance maintenance of sobriety, enhance addiction treatment outcomes, and decrease the probability of treatment dropout.

Research Highlights:

- *Thirty-four married couples, in which the husband had recently begun individual outpatient alcoholism counseling following either a 28-day inpatient treatment or a 7-day inpatient detoxification, were randomly assigned to either (1) behavioral marital therapy, (2) interactional couples therapy, or (3) a no-marital-treatment control condition (O'Farrell, Cutter, and Floyd 1985). Each couples group met for 10 weekly 2-hour sessions. Couples who received the behavioral marital therapy improved significantly on overall marital adjustment, extent of desired relationship change, marital stability, and positiveness of communication when discussing a current marital problem. Alcoholic patients in the behavioral marital therapy condition spent fewer alcohol-involved days during treatment than their interactional group counterparts. Overall, results suggest that adding behavioral marital therapy to*

the outpatient phase of alcoholism treatment produced statistically and clinically significant improvements in the marriage relationships of male alcoholics. Behavioral marital therapy was superior to no marital treatment and equal or superior to a frequently used alternative marital treatment. In addition, behavioral marital therapy brought alcoholics with serious marital problems into the range of nondistressed couples on these measures of marital functioning.

- O'Farrell and colleagues (1992) provided 2-, 6-, 12-, 18-, and 24month follow-up outcomes for the study described above (O'Farrell, Cutter, and Floyd 1985). During and in the 2 years after treatment, alcoholic patients and their wives who received behavioral marital therapy couples group in addition to the husbands' individual alcoholism counseling showed significant improvements in both drinking and marital adjustment, better marital outcomes, and less time separated than couples in which the husband received individual alcoholism counseling only. Although behavioral marital therapy remained superior to individual counseling alone on wives' marital adjustment and days separated throughout much of the 2 year follow-up, the strength and the consistency of marital relationship findings favoring the therapy diminished as time after treatment increased In terms of drinking outcomes, the advantage for the therapy over control noted during treatment was no longer apparent for the 2 years after treatment, when the addition of behavioral marital therapy no longer produced better results than individual treatment alone. Given the diminishing of treatment effect after 2 years, the researchers explored adding a relapse prevention component to behavioral marital therapy, which had expected positive outcomes (O'Farrell et al., 1993J and is described in the relapse prevention section.

- Bowers and Al-Redha (1990) assigned 16 couples to either conventional individual therapy or group couples therapy for alcoholics and their spouses. Treatment outcomes included measures of marital or rela tionship adjustment, ratings of social functioning, and ratings of work functioning for both partners, as well as alcohol consumption of the alcoholic partner. The study indicated significant improvements for alcoholics and partners of alcoholics on measures of marital adjustment, relationship ratings, and ratings of work functioning. Alcoholics receiving couples therapy demonstrated a greater reduction in alcohol consumption than their counterparts receiving individual therapy at the 6-month follow-up, and a trend for less drinking at 1 -year follow-up. The couples therapy was associated with higher adjusted relationship ratings at 6 and 12 months. The couples therapy was also associated with a trend toward higher Marital Adjustment Scale scores at 6 and 12 months.

- Hedberg and Campbell (1974) randomly assigned 49 alcoholic patients to one of four behavioral treatments: behavioral family counseling, systema tic desensitiza tion, covert sensitization, or shock presentation treatment. The behavioral family counseling condition included behavioral contracts, identification of target behaviors, learning about positive reinforcement, assertiveness training, and behavioral rehearsal techniques. Behavioral family counseling yielded a goal-attainment rate of 74 percent, with an additional 13 percent giving evidence of much improvement. These rates were superior to goal-attainment and improvement rates for systematic desensitization (67 and 20 percent), covert sensitization (40 and 37 percent), and electric shock treatment (0 percent).

- Sixty-nine alcoholic men in a 28-day inpatient chemical dependency treatment program at a Veterans Administration hospital were randomly assigned to one of three conditions: (1) a communications skill training group, (2) a communication skills training group with family or significant other participation, or (3) a cognitive behavioral mood management training group (Monti et al., 1990).

Alcoholics who received the communications skills training with or without significant other involvement consumed significantly less alcohol per actual drinking day during the 6 months following treatment than patients who receive the cognitive behavioral mood management training group. There was no differential effect on whether patients relapsed how quickly relapse occurs, or the number of days abstinent. But interpersonal communication skills training did result in alcoholics drinking less when they did drink. Among all groups, positive outcomes included significant improvements in their skill and anxiety in general social situations, shorter response latencies, less anxiety, and responses judged to be more effective in preventing drinking in role plays.

- Thirty-three alcoholic patients and their nonalcoholic spouses were randomly assigned to one of three conditions: (1) joint hospitahzation followed by couples and individual outpatient treatment for both spouses, (2) couples and individual outpatient treatment for both without joint admission, or (3) individual inpatient and outpatient treatment for the patient alone (McCrady et al., 1979J. Couples were evaluated at 6 to 8 weeks and 6 to 8 months after hospital discharge. All groups displayed significant decreased in the number of reported marital problems, depression, anxiety, other psychological symptoms, and decreased impairment from alcohol use. Only the joint admission and couples groups showed significant decreases in the quantity of alcohol consumed This study demonstrated improved functioning for all the experimental groups, with the improved functioning of the conjointly treated condition being significantly better than the individually treated condition.

- McCrady and colleagues (1986) provided treatment to 53 alcoholics and their spouses in one of three outpatient behavioral conditions: (1) minimal spouse involvement (MSI),(2) alcohol-focused spouse involvement (AFSI), or (3) alcohol-focused spouse involvement plus behavioral marital therapy (AMBT). Subjects were followed for 6 months after treatment. Subjects in all three conditions had positive treatment outcomes, with marked decreases in frequency of drinking, and increased life satisfaction, sexual activity, and job stability. Compared with subjects in the AFSI condition, those in the ABMT group decreased their drinking more quickly during treatment, maintained their drinking improvements longer, and maintained marital satisfaction better. They were more likely than subjects in the MSI condition to stay in treatment and to maintain their marital satisfaction following treatment.

- In a study by Corder, Corder, and Laidlaw (1972), 40 married alcoholic men were assigned to either a control or intervention group. The control group participated in a 4week program that included daily group therapy sessions, didactic lectures, and supportive recreational and occupational therapy with no specific program planned for wives. The experimental group followed the same program for 3 weeks, but on the last 4 days of the program, their wives participated in an intensive 4day workshop with their husbands. Both the husbands and wives participated in (1) group therapy sessions, (2) analysis of videotapes of these sessions, (3) taped lectures on alcoholism, (4) group discussion emphasizing role playing in alcoholism, (5) recreational activities and discussions about recreation in alcoholism,(6) AA and Al-Anon meetings, (7) meetings with staff from follow-up treatment programs, and (8) homework assignments for the husband and wife teams. After 6 months, fewer of the intervention patients were drinking than comparison patients, more were attending some form of follow-up treatment, and fewer were unemployed

Behavioral Contracting

A treatment component that evolved from cognitive-behavioral psychotherapies, ***behavioral contracting*** involves the establishment of definite contingencies for behaviors related to AOD use and sobriety. These contingencies are established by the therapist, patient, and often, significant family members. A written agreement or contract is developed that specifies what types of reinforcers will be provided to the patient as long as the patient remains free of AODs and specific dysfunctional behaviors. It also specifies the loss of reinforcers as the result of AOD use and specific dysfunctional behaviors.

A form of behavioral contracting, called contingency contracting, may involve an agreement to participate in a urine-monitoring program, an agreement to an aversive contingency to either a positive urine sample or failure to deliver a urine sample, and in some cases, positive reward for drug-free behavior. For instance, patients may agree to participate in a urine-monitoring program and agree to endure a predetermined serious and aversive event if they provide urine samples with evidence of AOD use or refuse to provide urine samples. The contingency may include having to receive additional treatment at a higher level of intensity, being forced to move out of the house, or having the spouse initiate divorce proceedings.

Research has shown that behavioral contracting, which involves setting specific goals and reinforcing approximations, can be an effective therapeutic service in addiction treatment. Like most treatment components, behavioral contracting is most effective within the context of a comprehensive treatment and recovery program.

Research Highlights:

- *Ahles and colleagues (1983) randomly assigned 50 patients to either an experimental group employing behavioral contracting designed to increase aftercare attendance or a control group receiving standard scheduling arrangements. The experimental group signed a behavioral contract for aftercare attendance and were provided with a calendar upon which their aftercare sessions for a 6-month period had been scheduled The contract, which was negotiated between the patient and a significant other (when available}, indicated their agreement to (1) post the calendar, (2) attend sessions regardless of drinking status, and (3) reschedule missed sessions. An incentive (e.g., favorite meal, night on the town) was provided for each kept appointment. At the 6-month and 1-year assessments, irrespective of assignment, patients who attended aftercare had significantly higher abstinence rates than nonattenders. Further, exposure to behavioral contracting increased significantly the likelihood of aftercare participation and greater abstinence rates.*

- *Miller (1975) evaluated the effects of a reinforcement contingency management system for chronic public drunkenness offenders over a 2-month period Twenty chronic inebriates were randomly assigned to intervention or control conditions. Intervention subjects were provided with required goods and services through skid row community agencies contingent on their sobriety. Control subjects received goods and services on a noncontingent basis. Intoxication resulted in a 5-day suspension of all goods and services. Subjects substantially decreased their number of public drunkenness arrests and their alcohol consumption, and increased their number of hours employed No such changes were observed in the control group.*

- *Keane et al. (1984) examined the effects of spouse contracting to increase disulfiram compliance among 25 patients who had been treated in a 4week inpatient treatment program and who lived*

with a significant other, generally a spouse. The contract involved consuming the disulfiram in the presence of a significant other, and documenting the event in writing. The three conditions were (1) no contract and no recording, (2) contract and recording, (3) contract and recording plus instructions for positive reinforcement. At the end of the 3-month period for which the disulfiram was prescribed patients who were involved in contracting and recording reached criterion more frequently than those in the minimal treatment group. Also, 84 percent of this group were abstinent at the 3-month follow-up.

- *Higgins et al. (1991) evaluated the effectiveness of a behavioral treatment program for achieving initial cocaine abstinence in patients participating in outpatient treatment for cocaine addiction. Thirteen consecutively admitted patients were given behavioral treatment consisting of contingency management procedures, positive reinforcement, and the community reinforcement approach. Fifteen consecutively admitted patients were offered 12-Step counseling; 12 patients accepted Ten of the patients given behavioral therapy achieved 4 weeks of continuous abstinence, compared with three who received 12-Step counseling. Six of the patients receiving behavioral treatment achieved 8 weeks, and three achieved 12 weeks of abstinence. None of the patients receiving only 12-Step counseling achieved 8 weeks of abstinence.*

Brief Intervention Treatment

The phrase *brief intervention treatment* describes specific clinical strategies that include a comprehensive assessment, a small number of primary treatment contacts (e.g., three counseling sessions), and follow-up visits. A substantial body of evidence supports the effectiveness of this treatment component.

Effective brief interventions generally include the following six elements: (1) feedback of personal risk or impairment following an extensive (2-3 hour) assessment or evaluation, (2) emphasis on personal responsibility for change, (3) explicit verbal or written advice to change (i.e., reduce or stop AOD use), (4) a menu of alternative strategies for reducing AOD use, (5) a warm, reflective, empathic, and understanding therapeutic counseling style, and (6) explicit encouragement and enhancement of the patient's self-efficacy and optimism for change (Miller and Sanchez, 1993). Most brief interventions also include repeated follow-up visits.

An ample body of controlled research involving randomization has documented the effectiveness of brief intervention treatment as a technique to accomplish or enhance several clinical goals:

- The facilitation of referral to addiction treatment services by health care clinicians in general or emergency medical settings
- The facilitation of behavior change related to AOD use by clinicians in general medical settings
- The facilitation of behavior change related to AOD use by self-referred drinkers
- The enhancement of motivation to participate in addiction-related treatment
- The facilitation of behavior change related to AOD use by addiction specialists in an addiction treatment setting.

This document will examine the final category: the use of brief intervention as a primary treatment component within an addiction treatment program.

Brief intervention has been used primarily in the treatment of alcohol abuse and addiction. Relatively brief interventions have consistently been found to be effective in decreasing the amount of alcohol consumption or achieving successful referrals to treatment. Research demonstrates that brief interventions (1) are usually significantly more effective than no intervention, (2) commonly show equivalent impact to that of more extensive interventions, and (3) can enhance the effectiveness of subsequent treatment (Bien, Miller, and Tonigan, 1993).

Brief interventions, including brief motivational interventions, can be used as a cost-effective component, especially to replace or reduce waiting lists. Brief intervention treatment can be implemented within a broad range of health, social, and employment service systems, such as emergency and primary medical care, social services programs, employee assistance programs, and addiction treatment settings.

Brief Intervention in Addiction Treatment Settings

Over a dozen controlled and randomized studies have compared brief interventions with extensive treatment for alcohol abuse and alcoholism, including cognitive-behavioral therapies, marital therapy, confrontation counseling, and standard inpatient and outpatient alcoholism treatment. With minor exceptions, research indicates that well-planned and consistently administered brief intervention can have an overall impact comparable to that of more extensive counseling (Bien, Miller, and Tonigan, 1993). It should be noted, however, that many studies of brief interventions involved patients who were involved in alcohol abuse not addiction.

Research Highligh ts:

- *In the first and classic study that compared the outcomes of brief intervention with extensive treatment, Edwards and colleagues (Edwards et al., 1977; Or ford Oppenheimer, and Edwards, 1976) examined the treatment outcomes of 100 married male alcoholic patients who were randomly assigned (by subset) to receive either advice or treatment. All patients received a physical examination and were examined by a psychiatrist who documented the alcoholism history, and a psychologist who administered numerous psychological tests. The wives were interviewed by a social worker. All patients and their wives participated in a counseling session with the social worker, psychologist, and psychiatrist. All patients and their wives were informed about the alcoholism, advised to seek abstinence, encouraged to continue employment, and encouraged to make the marriage viable. The 50 patients who were assigned to the "advice" condition were told that the clinic would not provide any treatment and that they would be responsible for achieving treatment goals. The treatment group received a package of assistance, including an introduction to AA, medication, several sessions with a psychiatrist for the patient, and several sessions with the wife. When required patients were also offered admission to a detoxification unit, inpatient group therapy, occupational therapy, and the ward milieu therapy. Outcome measures included drinking behavior, subjective ratings, social adjustment, and treatment experience. There were no significant differences between the two groups on any measure at either 12-month follow-up (94 percent contacted) or 24month follow-up (65 percent contacted). The study sample was followed for more than 10 years. At no point during follow-up did the groups differ significantly on any outcome measure {Edwards et al, 1983).*

- The Edwards study was replicated in a study that involved the stratified randomization of 113 alcoholics to one of three conditions following a 2-week inpatient detoxification: (1) a 6-week inpatient program; (2) a 6-week outpatient program, or (3) a single "confrontation" interview with the patient and significant other. The latter was based on Edwards' protocol and included feedback of assessment results, an emphasis on personal responsibility for recovery, and encouragement that the patient had sufficient personal resources to accomplish the required behavior changes. No significant differences were observed between groups on any of a wide range of drinking measures. While outpatient treatment contributed to better outcomes at short follow-up (6 months), only the brief intervention was related to favorable outcomes at 18 months (Chapman and Huygens, 1988).

- Forty referrals to an alcoholism clinic received a thorough assessment followed by advice and counseling about their drinking. Subjects were randomized to receive outpatient clinic alcoholism counseling or referred to their general practitioner, who was supported by speciahst staff. At 6-month follow-up, both groups exhibited substantial improvement on a range of drinking measures and related treatment outcomes; however, there were no significant differences between patients treated by alcoholism specialists and those treated by their general practitioner (Drummond et al., 1990).

- A series of studies by Miller and colleagues was similar to the Drummond study. Following 2-3 hours of assessment, problem drinkers were randomized to receive either 10 weeks of outpatient treatment or a minimal treatment control condition: advice from the counselor to follow procedures outlined in a self-help manual. The groups exhibited parallel improvements during 3 months of follow-up, with over a 50 percent reduction in alcohol consumption (Miller and Munoz, 1982J. This finding was replicated in two randomized studies that compared (1) the provision of written educational materials as treatment, which involved an assessment and provision of a self-help manual, (2) 10 sessions of behavioral self-control training (BSCT), (3) BSCT plus relaxation training, and (4) group therapy identical to (3) but offered in a group rather than individual format. All groups experienced significan t and substantial reductions in alcohol consumption, especially in "alcoholismic" drinking patterns. No significant differences were found among the four treatment groups at any point during 2 years of follow-up (Miller and Taylor, 1980; Miller and Baca, 1983).

- A group of 96 problem drinkers were randomly assigned to receive one of the following treatments: (1) a 7-week didactic and confrontational treatment, (2) a cognitive-behavioral treatment, or (3) minimal treatment group consisting of one advice session with the offer of a follow-up session 7 weeks later. Over a 15 month follow-up period no between-group outcome differences were observed (Sannibale, 1988).

- From a population of patients attending somatic outpatient clinics, 78 patients were selected who had either an excessive consumption of alcohol according to questionnaires or a raised gamma glutamyltransferase value due to alcohol consumption (Persson and Magnusson, 1989). These patients did not exhibit alcoholism but rather alcohol abuse. They were randomly assigned to either a control condition or an intervention condition that consisted of a monthly follow-up visit with a nurse, monthly laboratory tests, and a follow-up visit with a physician every 3 months. The consumption of alcohol, gamma glutamyltrans ferase and triglyceride levels, and sickness allowance days were decreased in the intervention group compared to the time before intervention. In contrast, the number of sickness allowance days in the control group increased

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Overview of Addiction Treatment Effectiveness

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Services

#14

Substance Abuse and Mental Health Services Administration
Office of Applied Studies

OVERVIEW OF ADDICTION TREATMENT EFFECTIVENESS

by

Mim J. Landry

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service

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* The PREVline Bulletin Board Service is a forum for exchanging ideas and information concerning alcohol, tobacco, and other drug problems.

- *A randomized controlled double blind 12-month trial with interim assessment at 6 months was conducted to determine the effectiveness of advice from general practitioners to reduce excessive alcohol use by 909 heavy drinkers (Wallace, Cutler, and Haines, 19881. Patients in the treatment group were interviewed by a general practitioner who had received training and received advice and information about how to reduce consumption and also given a drinking diary. The intervention resulted in an appreciable reduction in quantity of alcohol consumed and in the proportion of patients drinking excessively. After 12 months, the net effect of the intervention was a reduction of nearly one fifth in the proportion of excessive drinkers of both sexes. The largest reduction in consumption occurred during the first 6 months of the trial after the initial intervention by the general practitioners. The proportion of men with excessive consumption at interview had dropped by 44 percent in the treatment yroup compared with 26 percent in controls, with proportionate reductions of excessive drinkers in treatment and control yroups of 48 percent and 30 percent, respectively.*

Stress Management

Aside from AOD use, addicted patients often have few alternative methods of coping with stress. While active addiction generates stressful experiences, the treatment and recovery processes generate tremendous emotional and social upheaval. These experiences must, moreover, be handled for the first time without the use of AODs. Thus, an important treatment goal is provide patients with tools to reduce stress and to avoid using AODs to manage intense feelings.

The primary focus of stress management is to teach patients how to reduce tension and manage stress and anxiety. Thus, patients learn how to modify their responses to stressful situations, as well as how to modify the external environment.

Controlled research has reported beneficial impact from relaxation techniques, stress management training, systematic desensitization, biofeedback, aerobic exercise, and cognitive strategies. Like other treatment components, stress management for addiction treatment is most effective within the context of a comprehensive treatment program.

Research Highlights:

- *Hedberg and Campbell (1974) randomly assigned 49 alcoholic patients, to one of four behavioral treatments: behavioral family counseling, systematic desensitization, covert sensitization, or shock presentation treatment. The systema tic desensitization condition included relaxation training with personal hierarchies. The covert sensitization condition included relaxation training prior to initiation of covert sensitization episodes. Behavioral family counseling demonstrated the best outcomes, with a goal-attainment rate of 74 percent, and an additional 13 percent of patients giviny evidence of much improvement. Systematic desensitization demonstrated goal-attainment and evidence of improvement rates of 67 and 20 percent, covert sensitization had rates of 40 and 37 percent.*

- *Forty heavy-drinking subjects (mean of 127 drinks monthly) were o'ivided into three blocks, based on anxiety trait test scores, and randomly assigned to stress management training or control groups within each block (Rohsenow, Smith, and Johnson, 1985). The cognitive-affective stress management training was a drinkiny reduction proyram for heavy social drinkers. Subjects rated the frequency and intensity of their anxiety, anger, and depression, and recorded their alcohol consumption daily over a 6-month period The training significantly reduced posttreatment daily*

anxiety ratings and was associated with changes in four of ten irrational beliefs, and a shift toward more internal focus of control in treated subjects. However, reductions in anxiety were no longer evident at the 2.5 and 5.5-month follow-ups. The men in the intervention group showed a significant decrease in daily drinking rates at posttrea tment and at the 2.5-month follow-up, but drinking returned to baseline levels by 5.5 months for the group as a whole. However significant improvement variance in daily moods and in drinking rates over all posttreatment periods was accounted for by individual difference variables in the trained subjects but not in the control group, suggesting that these cognitive, personality, and social support variables are associated with response to stress management training.

Social Skills Training

The focus of social skills training is not on AOD use per se hut on other life problems that are often functionally related to AOD use and relapse.

An underlying assumption of social skills training is that AOD problems arise, continue, or reemerge at least in part because the individual is deficient in communication skills necessary for sober living. The focus of social skills training is to teach patients how to establish, maintain, and improve healthy interpersonal relationships. This treatment component generally includes communication skills, listening skills, problem-solving skills, and assertiveness training.

Social skills training appears to be an effective adjunct in promoting sobriety among patients who are deficient in social skills. Research indicates that addiction treatment programs with social skills training are superior to supportive, counseling, brief intervention, or control groups. Programs that provide social skills training yield significantly improved outcomes when added to traditional treatment.

This strategy appears to be most useful as a component in relapse prevention, especially for patients who are deficient in some area of social skills. Research indicates that planned and individualized social skills training is associated with lower rates of relapse.

Research Highlights:

- *A study by Chaney, O'Leary, and Marla tt (1978) examined a short- term skill- training intervention that taught appropriate behaviors to be used during problematic situations. forty alcoholic men in inpatient treatment were assigned to either (1) a skill-training group (problem-solving skills and behavioral rehearsal of specific responses), (2) a discussion group, or (3) a group receiving no additional treatment. The skill- training group incorporated instruction, modeling, behavioral rehearsal, and coaching. A I-year posttreatment follow-up indicated that skill training decreased the duration and severity of relapse episodes. Patients receiving the skills training had superior outcomes than the two control groups with respect to days drunk, total number of drinks, and average length of drinking period*

- *Jones, Kanfer, and Lanyon (1982) attempted to replicate and extend the skill training intervention developed by Chaney, O'Leary, and Marlatt (1978) to a group of 68 alcoholic patients with a higher socioeconomic status than was previously studied The patients were randomly assigned to one of three conditions: (1) skill training, which consisted of behavioral rehearsal of coping responses generated for potential relapse-precipitating events, (2) a discussion control group that discussed the*

potential relapse-precmitating events without rehearsing specific responses, or (3) a control group that received no additional treatment. All patients received the assigned treatment as an adjunct to a standard inpatient treatment program. Unlike the Cheney et al. study, which found the skill training package to be superior to both control groups, this study found that both the skill training and discussion groups were superior to the no- treatment control group and did not differ from each other. At l-year follow-up, both the skill training and the discussion group reported less alcohol consumption and fewer days in toxica ted than subjects given no additional treatment.

- Oei and Jackson (1980) examined the short- and long-term effects of group and individual social skills training compared with traditional supportive therapy on 32 chronic alcoholic patients. Four groups of matched subjects received 12 2-hour sessions over 3 weeks of either group or individual social skills training or group and individual traditional supportive therapy. Social skills trained were nonverbal expression, refusing unreasonable requests, making difficult requests, expressing and receiving positive feelings, replying to criticism, and initiating conversations. Changes in alcohol in take, various social skills, and personality were measured pretreatment and 3, 6, and 12 months pos ttrea tmen t. Patients receiving social skills training improved significantly more than subjects receiving traditional supportive therapy on all measures throughout the 12-month period Subjects receiving group social skills training in a group setting scored consistently better than those receiving individual training on all measures except alcohol intake and some personality measures.

- Thirty two patients admitted to alcohol treatment were selected on the basis of mild to severe assertion deficits. They were matched and assigned to one of four 3-week,12-session treatment conditions: (1) social skills training, (2) cognitive restructuring, (3) cognitive restructuring plus social skills training, and (4) traditional supportive therapy (Oei and Jackson, 1982). Measures were conducted pretreatment and 3, 6, and 12 months posttreatment. Overall, cognitive restructuring and social skills training in combination with cognitive restructuring were more effective than social skills training alone or traditional supportive therapy in producing lasting skill increments and decreased alcohol consumption.

- Eriksen, Bjornstad, and Gotestam 11986) randomly assigned 24 alcoholic patients to a social skills training or control condition. Both groups received the traditional treatment program at the institution. The social skills training consisted of instruction, modeling, behavioral rehearsal, feedback, individualized role-playing, and real-life homework assignments to increase the patients' social skills and assertiveness. At one year follow-up, compared with their control group counterparts, the . patients receiving the social skills training drank two-thirds the amount of alcohol and had twice as many sober days. The average length of abstinence following discharge was 52 days for the intervention group and 8 for the control group. All intervention group patients had drunk after 143 days, and all control group patients had drunk after 31 days.

- A study by Ferrell and Galassi (1981) examined the effects of adding either assertion training or human relations training to an existing 31 -day treatment program among 22 skill-deficient chronic alcoholics. The human relations training involved a series of structured verbal and nonverbal exercises designed to help patients develop a greater sense of themselves and how they are perceived by others as well as a greater ability to communicate feelings. The assertion training included the provision of written educational materials as treatment, discussion, modeling, behavior rehearsal, video feedback, counselor and peer coaching, and homework assignments. Three sessions each were devoted to teaching patients more effective ways to express warmth, anger, and refusal

behaviors. Although both treatment conditions led to comparable sobriety rates at a 6-week follow-up, patients in the assertion training exhibited significant gains in interpersonal skills compared with the human relations training. At 1- and 2-year follow-ups, the assertion training group maintained sobriety significantly longer than the human relations training group.

Relapse Prevention

Many people mistakenly believe that relapse is a sign of treatment failure. Early models of addiction viewed successful treatment and relapse as "all-or-nothing." Today, both treatment and relapse are understood to be dynamic processes. In particular, relapse is viewed as a transitional process from abstinence to active addiction.

The relapse process consists of a series of events and changes in thinking, attitude, behavior-that may or may not be followed by the use of AODs. Even if AOD use resumes, it may not reach the same level of intensity as before treatment-at least for a while.

It is helpful to distinguish between two patterns of drug use following treatment. The terms *lapse* or slip are often used to describe a brief episode of alcohol or other drug use following a period of recovery. A lapse or slip is often characterized by the individual taking full responsibility for the episode and for participating fully in a rapid resolution of the problem.

In contrast, the term *relapse* describes a failure to maintain behavior change over time. Relapse is not merely the sudden act of resuming alcohol or other drug use. Rather, relapse-like addiction, treatment, and recovery-is a biopsychosocial process that may culminate in the resumption of substance use. Research reveals that relapse is common among people who have received treatment for AOD addiction. For example, in a review of over 500 outcome studies for alcoholism treatment, more than three quarters of the subjects relapsed within the first year following treatment (Miller and Hester, 1980).

Like addiction, relapse is a progressive process that worsens over time if not treated or interrupted. The relapse process generally involves a return to distorted thoughts ("I don't need AA."), feelings ("I'll never get better."), and behavior ("What could it hurt to drop by my old bar?").

Research indicates that there are neurochemical, behavioral, and cognitive components to relapse, with drug hunger being an important component. Additional factors that can prompt relapse include negative emotional states, stress, interpersonal conflict, and to a lesser degree, social pressure, drug availability, and cues associated with drug use. Even positive mood states can prompt relapse, such as the excitement associated with sex and sports.

Evidence of relapse should not be considered evidence of treatment ineffectiveness or failure. Rather, it should be seen as evidence that the continuing care treatment or the recovery program of the individual requires strengthening. Relapse is a signal that certain treatment needs are not being adequately met and need to be addressed. Importantly, relapse demonstrates that factors associated with achieving abstinence are not the same factors associated with maintaining abstinence.

While relapse prevention is a frequent treatment component within a wide variety of program types and models, it can be described as a general treatment goal rather than a specific approach to treatment. The

bulk of relapse prevention efforts represented by well-designed research studies relates to cognitive-behavioral strategies.

Cognitive-behavioral relapse prevention strategies accentuate the need for developing a broad repertoire of cognitive and behavioral coping strategies to help prevent a relapse. Relapse prevention models often incorporate the concept of self-efficacy, which states that an individual's expectations about his or her ability to cope in a situation will affect the outcome.

The goals of such relapse prevention strategies are to help patients: (1) identify high-risk situations, (2) develop new coping skills for handling high-risk situations and their relapse warning signs, (3) make life-style changes that will decrease the need for alcohol or other drugs, (4) increase health activities that support recovery, (5) learn to interrupt lapses and slips so that they do not end in a full-blown relapse, and (6) learn to interrupt relapses so that their adverse consequences can be interrupted (Annis and Davis, 1989; Daley and Marlatt, 1992).

Relapse prevention is often a component of the intensive phase of addiction treatment and is a frequent component of continuing care or aftercare services.

Research Highlights:

- *O'Farrell and colleagues (1993) evaluated the effectiveness of providing couples-based relapse prevention to couples who had received behavioral marital therapy. Fifty-nine married couples with a newly abstinent alcoholic husband had participated in 6 to 8 weekly pregroup conjoint sessions and 10 weekly behavioral marital therapy sessions. The couples were randomly assigned to receive or not receive 15 additional conjoint couples relapse prevention sessions over a 12-month period. The relapse prevention sessions had three components: (1) to maintain the marital and drinking gains achieved during therapy, (2) to deal with marital and other issues still unresolved or that emerged and (3) to develop and cognitively and behaviorally rehearse relapse prevention plan, such as identifying high-risk situations and early relapse warning signs, and planning ways to minimize the length and consequence of drinking. Drinking and marital outcome measures were collected before and after behavioral marital therapy and at 3, 6, and 12 months during the year after therapy. Alcoholic patients who received relapse prevention after therapy had more days abstinent and fewer days drinking, maintained their improved marriages better, and used behaviors targeted by the therapy more than those who received behavioral marital therapy alone. The greater continued use of behaviors targeted by behavioral marital therapy were associated with better outcomes, irrespective of the amount of aftercare received*

- *Chaney, O'Leary, and Marlatt (1978) examined a skill- training intervention that taught appropriate behaviors to be used during problematic situations: (1) frustration and anger, (2) interpersonal temptation, (3) negative emotional state, and (4) intrapersonal temptation. Forty alcoholic men in inpatient treatment were assigned to either (1) a skill-training group (problem-solving skills and behavioral rehearsal of specific responses), (2) a discussion group, or (3) a group receiving no additional treatment. The skill- training group incorporated instruction, modeling, behavioral rehearsal, and coaching. A 1 -year posttreatment follow-up indicated that skill training decreased the duration and severity of relapse episodes. Patients receiving the skills training had superior outcomes than the two control groups with respect to days drunk, total number of drinks, and average drinking period length.*

- *In a study of 245 male alcoholic veterans randomly assigned to either 2- or 7-week hospitaliza tion, the most robust associations with positive treatment outcomes was participation in and duration of aftercare. There was a dramatic difference in abstinence rates between those who completed and prematurely terminated aftercare (70 percent versus 23 percent, respectively) /Walker et al., 1983).*

- *Ito, Donovan, and Hall (1988) examined the effects of two conditions fcognitive-behavioral relapse prevention and interpersonal process aftercare groups) on 39 recently hospitalized alcoholic patients. Both conditions consisted of eight weekly 90 minute sessions. At 6-month follow-up, the two interventions resulted in comparable outcomes as measured by alcohol consumption, alcohol-related impairment, cognitive coping, drinking days, time to first drink, abstinence, and aftercare attendance. Improvement on temptation was attributed to relapse prevention, and behavioral coping was attributed to interpersonal process.*

- *A study by Azrin and colleagues (1982) was designed to examine the outcomes of 43 alcoholic patients randomly assigned to one of three approaches to disulfiram therapy: (1) traditional disulfiram treatment, which included encouragement to take the medication and five counseling sessions with films and written education about alcoholism; (2) a Disulfiram Assurance Group, which included training specific to adhering to the disulfiram regimen, such as taking it at a set time, place, and in the presence of a significant other, as well as role-play exercises with significant others designed to increase motivation for compliance; and (3) a Behavior Therapy Plus Disulfiram Assurance Group, which included the protocol used in the Disulfiram Assurance Group plus behavioral training. The behavioral training included instructions in refusing offered drinks, muscle relaxation training to control urges to drink, training in positive methods of dealing with difficult social situations which had previously led to drinking, and advice on social and recreational activities. At the 6-month follow-up, the traditional treatment patients were drinking on most days and no longer taking the medication. The Disulfiram Assurance treatment resulted in almost total sobriety for married or cohabitating patients, but had little benefit for the single patients. The combined program with relapse prevention produced near- total sobriety for the single and married patients. This group exhibited superior results when measured by number of days drinking, number of days intoxicated number of ounces of alcohol per drinking episode, and time away from home or institutionalized*

Employee Assistance Programs

Employee assistance programs (EAPs) are workplace-based intervention strategies by which employee substance abuse problems are handled through a broad-based employee problem identification policy. Identification and referral to an EAP can occur through supervisory documentation of deteriorated job performance or self-referral. Once an employee has entered the program, the EAP has the responsibility to identify the nature of the problem.

Following problem identification, EAP staff link the employee with the treatment or other resource most appropriate for addressing the problem. When the employee has been referred to the EAP by a supervisor, and especially if there has been job performance degradation, the employee may be required to sign an EAP contract or agreement to comply with the treatment recommendations. Finally, the EAP provides follow-up with employees following treatment.

EAPs vary greatly in type and scope. Some are contractual services that are provided by an external organization located outside of the workplace. Others are autonomous departments within a company; still others, a subdivision of a company's human resource or medical department.

EAPs have four primary functions: (1) to retain employees who have AOD problems but in whom the organization has a substantial training investment, (2) to reduce supervisory and managerial responsibility for and involvement in counseling employees with AOD problems, (3) to provide for due process for employees whose AOD problems affect the quality of their work performance, (4) to encourage treatment of AOD problems among employees and dependents and thus contribute to overall health care cost containment, and (5) to provide gatekeeping for employees' use of health services for AOD problems (Roman and Blum, 1994).

EAPs, in summary, are not concerned solely with addiction treatment outcomes. Rather, their primary goals are often to resolve problems between supervisors and subordinates. Strictly speaking, EAPs are neither treatment nor treatment components. They provide identification, referral, and follow-up services, and serve as brokers to treatment. Thus, the outcomes of addiction treatment referrals to EAPs are tied to the treatment and aftercare components provided by programs completely independent of the EAP. Despite the poverty of controlled studies of EAPs and the frequently poor research design of EAP-related studies (Kurtz, Googins, and Howard, 1984) (they are often one-group pretest and posttest studies with no control group), there is research suggesting the effectiveness of EAPs in dealing with work-based AOD problems.

Research Highligh ts:

- *A classic study by Trice and Beyer (1984) used a sustained random, stratifed sample of managers in a large na tional corporation with an EAP. A sample of 153 managers who had a subordinate with a drinking problem and who had referred that employee to the company EAP, reported that about the general conduct of 80 percent of the problem drinkers improved following EAP interventions. Further, these managers reported that the work performance of 74 percent of the problem drinkers improved following EA P interventions.*

  This study indicated that while combined constructive confrontation and counseling were effective in changing the behavior of employees, those employees whose supervisor used only confrontation or counseling were unlikely to seek help or change their behavior. Employees who experienced both constructive confrontation and counseling made greater improvements than did those who experienced either alone.

- *An evaluation of an EAP operated by McDonnell Douglas Corporation examined medical claims cost, absenteeism, and job termination among employees addicted to AODs as well as employees who used mental health services (Smith and Mahoney, 1989). The study examined two groups of employees who used insurance benefits for addiction or mental health treatment: those who used the EAP services and those who did not. The groups were observed for up to several years prior to and following the base year. The study noted that EAP clients and their families have significantly lower future medical costs, have fewer absences in future periods, and are less likely to leave employment than other users of addiction and mental health services.*

- *Coyne (1987) examined the effectiveness of a broadbrush EAP that replaced an existing alcoholism program at the Burlington Northern Railroad EAP clients were assessed at intake and 3 and 12 months later. Job performance changes from intake to 12-month follow-up were noted for (1) using*

health insurance ffrom 17 percent to 5 percent), (2) arriving at work late ffrom 17 percent to 3 percent), (3) leaving work early ffrom 13 percent to 3 percent), (4) taking sick days ffrom 18 percent to 8 percent), and (5) experiencing job jeopardy ffrom 25 percent to 4 percent). However, the one-group pretest-posttest design poses a potential threat to the internal validity of the study.

- Using a field survey, self-report, retrospective methodology, 224 industrial supervisors' beliefs about impaired employees were examined in connection with the supervisors' participation in constructive confrontation training and their attitudes toward EA Ps (Gerstein et al., 1989). The supervisors complete a report that evaluated their beliefs about impaired workers' resistance, acrimony, disaffection, and industriousness. Supervisors attended a 1- to 2-hour meeting that included lectures on various issues and strategies related to the supervisor-impaired worker recognition, documentation, constructive confrontation, and EAP referral process. They also watched a film on these issues and received handout materials on effective methods for helping impaired workers. Overall, supervisors who received the training exhibited enhanced recognition of impaired employees. For example, after the training, supervisors were more likely to believe that behaviors associated with the acrimony and &affection dimensions were more indicative of impaired workers than supervisors who had not completed a training program. Also, supervisors who held positive attitudes about their EAP and had attended EAP referral training were significantly more likely to perceive behaviors linked to industriousness as suggestive of troubled employees than supervisors who thought negatively of their EAP or had not engaged in EAP training.

- Belasco and Trice (1969) assigned 222 frontline supervisors to one control and three treatment groups. Participants in all groups completed inventories dealing with their attitudes toward alcoholism and emotional disturbances. Participants in the training groups received information regarding ways to assist impaired workers in general and alcoholic workers in particular. The supervisors' willingness to confront troubled employees varied as a function of participation in training and when they completed the attitudinal instruments. The combination of supervisor training and attitudinal testing led to increases in supervisors' willingness to confront subordinates with problems.

Alcoholics Anonymous: The Prototype 12-Step Program

The 12-Step programs, such as AA, Narcotics Anonymous, and Cocaine Anonymous, are among the most widely used services used in addiction treatment and recovery. They are called 12-Step programs because the philosophical foundation for these programs are the so-called Twelve Steps or suggestions for living of AA.

The 12-Step programs are frequently used (1) as components of addiction treatment, (2) following addiction treatment, as components of recovery programs, and (3) as the exclusive form of help for untreated individuals. Among the 12-Step programs, the most numerous and most studied is AA, which served as the prototype for all other 12-Step self-help programs.

The 12-Step programs differ from most other components of addiction treatment in that they are fundamentally self-help in nature and are not professional treatment services. Nevertheless, in many treatment approaches and settings, the 12-Step programs are standard components of addiction treatment, and they are often the central focus of recovery and treatment plans. This close relationship between the 12-Step self-help programs and addiction treatment complicates research regarding the effectiveness of the

12-Step programs. For example, while the combination of AA and addiction treatment is probably superior to either AA or addiction treatment alone, the embedding of AA within the addiction treatment system makes it difficult to examine the effects of AA on treatment outcomes.

Contrary to a commonly-held belief, there is in fact a substantial body of research on AA. Unfortunately, complaints of frequently poor research design are justified. Despite methodological flaws and significant gaps, research does provides some insight into the effectiveness of AA. However, research does not resolve potential self-selection or confounding problems, such as whether individuals experience improvements because they participate in AA or whether they participate in AA because of improvements or other factors. Further research is needed both regarding the effectiveness of AA, and to examine whether outcomes associated with AA are unique to this program or are generalizable to other 12-Step programs.

Research suggests that people who actively participate in AA are more likely to experience improvements with regard to drinking behavior. Evidence of active participation includes obtaining an AA sponsor, leading meetings, "working" the 12 steps, and having a high frequency of meeting participation. The most significant variables associated with improvements in drinking behavior are obtaining a sponsor and high frequency of meeting attendance.

Research suggests that there is a consistently positive, although modest, relationship between improvements in drinking behavior and participation in AA during or following treatment. In other words, patients who participate in addiction treatment plus AA have better drinking outcome results than patients who do not participate in AA during or after treatment. Similarly, positive drinking outcome rates for employer-referred patients have been shown to be greater if they had professional treatment prior to participation in AA.

With regard to measures other than drinking, participation in AA appears to be associated with improvements in psychological adjustment. Participation in AA also has been shown to have a positive, although weak, relationship with social, family, and marital adjustment; employment stability; improved legal status; and a more active religious life.

Research Highlights:

- *Walsh et al. (1991) compared the treatment outcomes of 227 alcoholic workers randomly assigned to one of three conditions: (1) compulsory inpatient treatment for 3 weeks followed by 1 year of AA (three times weekly) and weekly checks with the employee assistance program staff, (2) compulsory attendance at AA between 3 and 7 days weekly for 1 year, and (3) a choice of options, which included the hospitahzation, AA, or outpatient psychotherapy conditions, or no help. The groups were compared in terms of 12 job-performance variables and 12 measures of drinking and drug use during a 2-year follow-up period There were no differences among the three group with regard to job-related outcome variables. With regard to drinking outcomes, all three groups had substantial and fairly stable improvements on all 11 of the self-reported measures of drinking, with some deterioration over time. These measures included any drinking, number of drinking days in the previous month, average daily number of drinks, episodes of intoxication, episodes of binges, blackouts, and overall impairment. On four of the measures of drinking (mean number of daily drinks, number of drinking days per month, binges, and serious symptoms, there were no significant differences among the three groups at any follow-up point. The workers receiving treatment plus 1 year of AA three times weekly had the best treatment outcomes with regard to drinking and other drug use. This group also had the lowest relapse rates.*

- In a CA TOR evaluation of the treatment outcomes of 8,087 patients in inpatient abstinence-based programs and 1,663 patients in outpatient abstinence-based programs, both inpatients and outpatients who attend either AA or the aftercare provided by the treatment program were more likely to remain abstinent than nonattenders (Hoffman and Miller, 1992). This study also documented an interplay between self-help and continuing care. About 70 percent of patients who attended AA regularly but did not go to continuing care remained sober; conversely, a comparable proportion of patients who attended at least 4 months of continuing care were sober, even if they did not attend AA. However, up to 90 percent of those who attended both AA on a weekly basis and went to continuing care for the en tire year maintained their abstinence.

  In a CA TOR survey of 1,190 patients treated in inpatient abstinence-based programs, patient groups that participated in AA and/or some type of support group weekly or several times monthly had abstinence rates of 76 percent, and 62 percent respectively. Groups that (1) participated in support groups once monthly or less, (2) stopped attending support groups, and (3) did not attend such groups had abstinence rates of 54 percent, 41 percent, and 51 percent, respectively /Hoffman and Miller, 19931.

- Hoffman, Harrison, and Belille (1983) reviewed CA TOR follow-up data of 900 adults who participated in traditional inpatient chemical dependency treatment at eight hospitals during 1980. These 900 subjects represented 71 percent of the 1,272 individuals admitted to the programs during the test period who could be located for follow-up 6 months after discharge. Of the patients who attended one or more AA meetings weekly during the 6 months after their discharge from treatment, 73 percent remained abstinent, and of those who attended AA meetings several times each month, 69 percent were abstinent. Only 43 percent of the subjects who attended AA meetings once monthly or less reported abstinence.

- Alford (1980) reported Z-year follow-up data for 56 alcoholic patients who completed 5 to 11 weeks of treatment at an inpatient chemical dependency treatment program with a strong AA focus. The treatment program orientation was exclusively AA, it was structured according to AA principles, and all counselors were in recovery and participated in AA. Patients were discharged with staff approval after they had completed the first five of the 12 steps. They were assigned an AA sponsor and were strongly encouraged to complete the twelve steps and participate in AA in their communities. At 2 years, 51 percent were "essentially abstinent, " 15 percent were "light-moderate" drinkers, and 13 percent were 'heavy-abusive" drinkers. At 2 years, 66 percent were employed full time, 13 percent were employed part time, and 3 percent were unemployed or functioning below minimum standards. Nineteen percent were unknown. At the two year follow-up, 58 percent were considered socially stable and functioning, 2 1 percent described as socially disrupted, and 2 1 percent were unknown. Among patients completing the program, 49 percent were both abstinent and successfully functioning at 2 years. This rate increases to 56 percent if the light-moderate drinkers who were otherwise adaptively functioning are included

- Alford, Koehler, and Leonard (1991) evaluated the effectiveness of a traditional chemical dependency treatment program for adolescents in a study of 157 male and female patients aged 13 through 19. They noted that at 2 years after discharge, 84 percent of the subjects who attended more than five AA or NA meetings monthly were abstinent or essentially abstinent. Indeed, subjects who attended AA or NA more than five times per month were more likely to be abstinent or essentially abstinent at 2 years postdischarge whether they had completed treatment or not.

- A randomized clinical trial by Keso and Salaspuro (1990) compared the treatment outcomes and other measures of 74 patients treated in a chemical dependency treatment program built on an AA-oriented Hazelden model with 67 patients treated in a traditionally finish treatment program, based on social work and psychiatric treatment. There was no continuing care in either condition. The AA-oriented Hazelden-based program resulted in superior I-year abstinence rates, and experienced far fewer (7.9 percent) dropouts than the social-work program (25.9 percent). In addition, through the use of the Community Oriented Programs Environment Scale questionnaire, the patients reported that the AA-oriented Hazelden-based program was more involving, supportive, encouraging to spontaneity, and oriented to personal problems than the other program.

- Emrick (1987) examined published research regarding AA: (1) large-scale questionnaire surveys of members attending meetings, (2) studies of the effects of AA as an adjunct to professional treatment, (3) investigations of members' psychosocial and spiritual functioning, and (4) outcome evaluations in which AA was the only known intervention. Survey studies reveals that from 47 to 62 percent of the active members had at least 1 year of continuous sobriety (35 to 40 percent reported less than one year of abstinence, 26 to 40 percent had been abstinent 1-5 or 6 years, and another 20 to 30 percent had been sober 5 or 6 years or more). Many studies of AA as an adjunct to treatment suggest that involvement in AA prior to professional treatment is often not related to outcome, but when a relationship is observed it is positive-Le., a more favorable outcome. Similarly, patients who are involved in AA during or after treatment enjoy better outcomes. Studies of psychosocial and spiritual functioning reveal that involvement with AA is associated with better employment adjustment, more stable psychosocial adjustment, more active religious life, and more internal locus of control. Emrick's review of studies of AA as the only intervention noted that about 40 to 50 percent of alcoholics who participate in AA and become long-term, active members often have several years of complete abstinence while involved in AA. About 60 to 68 percent of active members improve to some extent, drinking less or not at all during participation in AA. Finally, individuals who are particularly active in AA, both with respect to frequency of attendance and involvement in the organization's therapeutic mechanisms, have an outcome status that is comparable to and often better than members who attend or participate less actively. In particular, outcome is more favorable for those who attend more than one meeting per week and for those who have a sponsor, who sponsor others, lead meetings, and work Steps Six through Twelve after completing a treatment program.

- Fiftynine recovering alcoholic members of five different AA meetings were asked to complete a questionnaire to assess the relationship between relapse and their level of involvement in the program (Sheeren, 19881. Using a Likert scale, subjects were asked to rate themselves on their level of involvement in the program and asked to state if they had relapsed during the course of their involvement with the program. Subjects in the relapse group rated themselves lower in every area of involvement on the questionnaire than those in the no relapse group. The most significant area of involvement, where the greatest differences between subjects in each group were found was in reaching out to other members of AA for help and in the use of a sponsor.

- Thurstin, Alfano, and Nerviano (1987) followed 145 alcoholics at 6-month intervals for 18 months following inpatient treatment. Drinking outcomes (number of days drinking, number of days drunk, and items measuring psychosocial stress} were compared based on overall degree of AA participation. At 6 months after discharge, individuals who participated in AA, even on a limited basis, reported drinking only 25 percent as often as subjects with no or infrequent AA attendance. At 18 months,

AA attenders indicated (1) being intoxicated one-third as often as nonattenders, and (2) drinking 40 percent less overall. Only at the 12-month follow-up was there neither a significant difference nor a trend However, the analysis for subjects contacted at all follow-ups indicated greater sobriety for AA attenders at 18 months postdischarge. It appears that the patients did not receive continuing care treatment following the inpatient phase but were encouraged and could elect to participate in AA. These modest, but highly consistent, results that AA was associated with decreased drinking and increased maintenance of sobriety would be expected to be greater if AA were not compared to but combined with continuing care, as is the norm.

Individual Psychotherapy

Early attempts to engage and treat addicted patients with individual psychotherapy as the exclusive treatment approach were notable for their failure. Controlled studies of individual psychotherapy-especially when used as the exclusive treatment strategy for substance use disorders-have yielded negative findings with remarkable consistency (Miller et al., 1994). This is especially true for exploratory psychotherapies.

An exception to this overall trend relates to client-centered therapy, which is based on the work of Rogers (1951). For example, client-centered therapy has compared favorably with alternative approaches in several studies of alcoholic patients.

Overall, research demonstrates that psychotherapy as the sole approach to addiction treatment is a poor treatment strategy. It is, however, beneficial as an adjunctive treatment service within a comprehensive addiction treatment program. Clinical experience demonstrates and research suggests that individual psychotherapy can be valuable: (1) to introduce and engage patients into addiction treatment, (2) to treat patients with mild severity levels of addiction, (3) as adjunctive treatment to complement ongoing addiction treatment services, (4) to help patients solidify gains following achievement of stable abstinence, and (5) to help patients not successfully treated through other approaches and strategies (Rounsaville and Carroll, 1992).

Patients who receive individual psychotherapy generally experience greater improvements on more outcome measures than patients who do not receive this treatment component. Also, the type of individual therapy may be less important than the act of receiving therapy. Research suggests that patients with high levels of psychopathology seems to benefit most from individual psychopathology.

Research Highlights:

- *Among patients entering a methadone maintenance treatment program, 110 were assigned to a 6-month treatment of either (1) paraprofessional addiction counseling alone, (2) addiction counseling plus 6 months of supportive-expressive psychotherapy, or (3) addiction counseling plus 6 months of cognitive-behavioral psycho therapy (Woody et al., 1 983). All three groups exhibited significan t improvements, but patients receiving the additional psychotherapies showed improvement on more outcome measures and to a greater degree than those who received counseling alone, and with less use of medication. There were no significant differences between the two groups that received psycho therapy. Further, these improvements were sustained over a 12-month period while patients receiving counseling only experienced some loss of improvements.*

- Further evaluation of this study (Woody et al., 1984) revealed that different patients received different benefits from treatment. Patients were classified low-severity, mid-severity, or high-severity on the basis of the number and severity of their psychiatric symptoms. Those patients with low psychopathology levels generally experienced significant improvement irrespective of treatment received Mid-severity patients had better outcomes with additional psychotherapy than with counseling alone, but counseling did effect numerous significant improvements. High severity patients made little progress with counseling alone, but with added psychotherapy made considerable progress and used both prescribed and illicit drugs less often.

- Subsequent evaluation of this study {Woody et al., 1985) demonstrated differential effects of the psychotherapy when the patients were examined in terms of their diagnoses: (1) opioid addiction alone, (2) opioid addiction plus depression, (3) opioid addiction plus depression and antisocial personality disorder, and (4) opioid addiction plus antisocial personality disorder. Patients with opiate dependence plus antisocial personality disorder alone improved only on ratings of drug use. Patients with opiate dependence alone or with opiate dependence plus depression improved significantly and in many areas. Opia te-addic ted patients with antisocial personality disorder plus depression responded almost as well as those with only depression. Thus, while antisocial personality disorder alone is a negative predictor of psychotherapy outcome, depression appears to be a condition that allows patients to be amenable to psychotherapy.

- Valle (1981) randomly assigned 247 first- time admissions to eight counselors at a hospital-based inpatient chemical dependency treatment program. All counselors were recovering alcoholics representing a variety of formal training and life experiences, and had been counselors for at least 2 years; six were men. All had maintained sobriety for at least 4 years and had attended an alcohol studies school or had equivalent training experience. The counselors were rated with regard to counselor-patient interactions and on the interpersonal dimensions of accurate empathy, genuineness, concreteness, and respect. Counselors were rated as either (1) low functioning- the response was not help ful, and that the counselor did not respond to the content or affect of the patient, (2) medium functioning-the counselor responded to the content of the patients' expressions, or (3) high functioning-the counselor identified the content and affect of the patient's expression and responded to it accurately. Analyses indicated that all of the discrete relapse variables from the hospital file data were significantly influenced by counselor level of interpersonal functioning. Higher level of counselor interpersonal functioning was significantly associated with (1) less likelihood of relapse, (2) the fewer the times a patient did relapse, and (3) the fewer relapse days a patient had at 6, 12, 18, or 24 months after treatment.

Chapter Six: Factors Influencing Treatment Outcomes

In both research and practice, there are several factors that can have an effect on addiction treatment outcomes. These include the treatment program characteristics, the length of treatment, policies regarding methadone dosage, therapist characteristics, and patient characteristics. This information has value in terms of understanding treatment outcome research but also in terms of establishing and improving treatment programs through policy and funding decisions.

Treatment outcome is affected by:

- Program characteristics
- Length of treatment
- Therapist characteristics
- Patient characteristics
- Dosage policies (methadone)

Treatment Program Characteristics

Research has demonstrated that addiction treatment programs that share the same approach or setting can differ substantially with regard to program policies, protocols, and missions; the quality of clinical staff; the quality and philosophy of program management and administration; the scope of treatment services provided; organizational features; and morale among patients and staff (Ball and Ross, 1991; Anglin and Hser, 1990; Joe et al., 1983; McCaughrin and Price, 1992). Such factors can influence treatment outcomes.

Apparently identical programs can differ with regard to treatment intensity, if they provide the same treatments and services and have equivalent staff but have differences with regard to staff training, patient-to-staff ratios, and patient-treatment matching. Such program differences are associated with differences in treatment outcomes, although the degree of association varies among studies. In a nationwide study of 394 nonmethadone treatment programs, treatment effectiveness was found to be related to such program characteristics as adequate staffing levels, management efforts to ensure quality services, the extent of patient follow-up by staff, and patient selection factors (McCaughrin and Price, 1992). This study demonstrates that methadone maintenance treatment programs that have more treatment staff were likely to have better patient treatment outcomes, and that programs with higher patient-to-staff ratios were likely to have higher percents of patients who continue to use AODs.

Research has shown that the most effective treatment programs often share several characteristics: flexible policies that result from a case-management approach to individual patient needs, adequate funding, and a systematic assessment of program performance and prompt modification of deficient areas (Inciardi, 1993). On the other hand, programs that experience low patient retention rates and poor treatment outcomes often have impersonal, rigid, inflexible approaches (McGlothlin and Anglin, 1981; Brown, Watters, Iglehart and Akins, 1982-1983).

Perhaps the most basic relationship between program variables and treatment outcomes relates to the treatment services provided. Research indicates that the quantity and range of treatment components provided to patients are significantly related to patient improvement and treatment outcomes in the targeted treatment areas. That is, programs that provide treatment components in specific areas (such as vocational development and relapse prevention) are likely to produce superior outcomes in those areas than in other areas. As a result, the more comprehensive the range of treatment services, the more comprehensive and effective the treatment.

While differences among individual treatment programs are known to have a significant effect on treatment outcomes, research does not suggest that specific treatment approaches consistently produce superior outcomes. For example, Joe and colleagues (1983) examined variations in posttreatment outcomes for patients treated in three approaches, represented by seven methadone maintenance treatment programs, seven therapeutic community programs, and nine outpatient drug-free nonmethadone programs. This study did not examine differences among programs within the same approach; rather, it evaluated whether any of the treatment approaches was superior to the others. Results suggest that only a small percentage of variance in posttreatment outcomes is uniquely related to treatment program differences. Indeed, more of the program variation appears to be attributable to differences in patient composition than to treatment approach characteristics.

Research Highlights:

- *Ball et al. (1986) examined general program management as well as services provided to patients in their study of seven methadone maintenance treatment programs. Despite the fact that these seven programs were selected because they were "'average" or "above average" with regard to staffing patterns, there were wide variations in the type, frequency, and quality of treatment services provided to patients. There were marked differences in (1) the number and type of medical staff, (2) the availability of treatment staff, (3) and the actual provision of medical services. Further, they noted that these program differences were related to important treatment outcome measures such as drug use, needle sharing, crime, and employment (Ball and Corty, 1988).*

- *In a nationwide study of 394 nonmethadone treatment programs, multivariate analyses were conducted to identify program features that were related to patient outcomes after controlling for patient characteristics, organizational characteristics, and social area characteristics (McCaughrin and Price, 1992). The programs more likely to have patients who met their treatment goals were more likely to: (1) be for-profit, (2) have more treatment staff members, (3) be accredited by the Council on Accreditation, (4) receive referrals from churches, (5) provide a variety of treatment services, (6) have a policy of sobriety for receiving treatment, and (7) collect patient follow-up information. Programs having higher patient-to-treatment staff ratios were likely to have higher percentages of patients who continue to use alcohol or other drugs. Treatment units that had higher percentages of patients meeting treatment goals also had higher levels of HIV/AIDS testing and were more likely to require sobriety as a condition of treatment.*

- *In a study of the comparative effectiveness of four addiction treatment programs (two inpatient and two outpatient), it was demonstrated that the programs providing the most services directed at a particular treatment problem generally showed the best outcomes in that problem area. For instance, in the case of the two outpatient programs, the one that provided the most services in each problem area showed the best outcome in that area, in nine of eleven criteria measured (medical status, employment and self support, alcohol use, other drug use, legal status, family and social relationships, and psychiatric symptoms) (McLellan et al., 1993a).*

- *In a recent study, 102 patients seeking methadone maintenance treatment were divided into three groups: (1) minimum methadone services {methadone alone), (2) standard methadone services (methadone plus counseling), and (3) enhanced methadone services (methadone, counseling, and onsite medical, psychiatric, employment, and family therapy services). At 24 weeks, methadone alone resulted in minimal improvements; methadone plus counseling resulted in significant improvements*

over methadone alone; and enhanced methadone services, the group that received a broad range of psychosocial services plus methadone, had the best outcomes of all (McLellan et al., 19936.)

- *In a study of 300 patients addicted to cocaine, Khalsa and Anglin (1991) assessed the relative effectiveness of inpatient, outpatient, and self-help groups separately and in various combinations. With regard to continued abstinence, the greatest success at I-year follow-up was demonstrated by patients whose treatment included a 2 I-day inpatient episode, outpatient aftercare treatment with group and individual counseling, and participation in self-help programs. In contrast, only 15 percent of patients whose treatment consisted only of a single 21-day inpatient episode were abstinent at a I-year follow-up.*

length of Treatment

Research demonstrates that for methadone maintenance and therapeutic community approaches, longer lengths of treatment are clearly associated with positive treatment outcomes. As long as patients participate in methadone maintenance treatment and therapeutic community treatment, which is often many years, their biopsychosocial treatment outcomes are improved; when they stop treatment, their outcomes are generally better than before treatment, but not as good as during treatment.

In general, methadone maintenance treatment is a long-term process typically measured in years. Similarly, a primary treatment component of therapeutic communities is the act of often long-term living with others in a therapeutic residential setting, again, typically measured in years. In contrast, other nonmethadone abstinence-based treatment approaches typically involve (1) a brief period of detoxification, (2) an episode of acute intensive psychosocial treatment (which may overlap with the detoxification phase), and (3) nonintensive continuing care, relapse prevention, and self-help participation.

Thus, for approaches and strategies other than methadone maintenance, it is useful to ask "Does the length of the intensive phase of psychosocial treatment have an effect on treatment and on posttreatment outcomes?" The following is a synopsis of the research regarding length of acute intensive psychosocial treatment, especially for nonmethadone treatment approaches.

- Most but not all early studies that examined length of treatment indicated that long intensive psychosocial treatment episodes resulted in positive treatment outcomes.

- Most but not all of the recent controlled studies that examined length of treatment do not demonstrate differential outcomes for longer as compared to shorter intensive psychosocial treatment episodes-except for patients with significant psychopathology or social instability.

- For some patients, such as those who have severe impairment from psychiatric disorders or intense levels of criminal involvement, brief treatment episodes generally yield limited benefit, while longer term and more intensive treatment are associated with significant improvement.

- If accompanied by outpatient continuing care or aftercare services, intensive psychosocial treatment may be shortened for many patients without reducing treatment efficacy.

Research Highlights:

- Several evaluations of the TOPS data have shown that extended lengths of treatment are associated with numerous positive treatment outcomes, particularly reductions in drug use and criminal behavior, as well as the severity of AOD use, drug-related problems, predatory illegal acts, and increases in posttreatment employment and earnings (De Leon, 1984; French et al., 1993; French and Zarkin, 1992; Hubbard et al., 1989; Simpson, 1981).

  While evaluation of the TOPS data has demonstrated an association between length of stay and superior treatment outcomes for all treatment approaches, patients receiving residential treatment experienced the greatest impact on all outcome variables in relation to length of time in treatment.

- The DARP and other studies have shown that patients who remained in treatment for extended periods and who demonstrated positive outcomes during treatment tend to demonstrate favorable outcomes (Simpson et al., 1984J. Also, such studies suggest that a minimum time in treatment is required to produce favorable results. Patients who remained in methadone maintenance treatment, therapeutic community, or outpatient nonmethadone treatment for less than 3 months have poor outcomes, regardless of the reason for termination.

- Page and Schaub (1979) randomly assigned 86 alcoholics to either 3 or 5 weeks of traditional inpatient treatment. At 6-month follow-up, there were no significant differences between the groups on any measure, including self-report and collateral reports of drinking, and psychological adjustment as measured by the Minnesota Multiphasic Personality Inventory.

- A study by Smart and Gray (1978) involved data from 793 alcoholic patients who had been treated at five outpatient clinics and who had participated in evaluations at baseline and 1 year later. The patients were nonrandomly divided in to three lengths of treatment groups: (1) minimal treatment, with one patient contact only; (2) moderate treatment, more than one visit but less than 6 months; or (3) long term treatment, more than 6 month's treatment. At a l-year follow-up, there were no significant differences in improvement, although the trend for total abstinence was highest in the group treated for more than 6 months.

- Walker et al. (1983) randomly assigned 245 alcoholic patients to either 2 or 7 weeks of behaviorally oriented inpatient treatment, with replacement of dropouts. Follow-ups were conducted at 3 months (88 percent completion), 6 months (84 percent completion), and 9 months (78 percent completion). No significant differences emerged on any measure of outcome, and the direction of differences favored shorter treatment. However, participation in aftercare, and the duration of aftercare had a dramatic effect on treatment outcomes. Patients who attended weekly aftercare groups for 9 months following hospitahzation were three times more likely to remain abstinent than patients who dropped out of aftercare (70 percent vs. 23 percent abstinence, respectively).

- Recent reviews of the literature on treatment length have concluded that most but not all of the newer, controlled studies did not demonstrate differential outcomes for longer as compared to shorter treatments-except for patients with significant psychopathology or social instability (Institute of Medicine, 1990; Miller and Hester, 1986)

- *The CALDATA study noted that, when considered together, all treatment approaches studied (residential treatment programs, social model recovery houses, outpatient nonmethadone treatment programs, outpatient methadone maintenance treatment programs, and methadone detoxification programs), the level of criminal activity posttreatment declined by two-thirds. The greater the length of time spent in treatment, the greater the percent reduction in criminal behavior. With regard to AOD use, residential treatment generally had greater effects, and these effects increased with the length of stay. Also, the CALDATA study indicated that longer lengths of stay in treatment have a positive effect on employment. The largest gains in employment occur with patients remaining in treatment beyond the first month (Gerstein et al., 1994).*

Therapist Characteristics

Addiction treatment research studies designed to investigate the effectiveness of settings, strategies, or other issues often examine the study results to assess whether treatment outcomes were affected by differences among therapists or counselors. Indeed, such studies often identify unexpected results that relate to specific clinicians. For example, patients who were treated by certain therapists may have better or poorer treatment outcomes than patients treated by other therapists in the same study that was designed to evaluate length of treatment.

As a result, studies have been designed to delineate the characteristics of more effective counselors and therapists. Research has documented the importance of therapist characteristics in addiction treatment outcomes.

The predominant research finding regarding clinician characteristics or style relates to the level of empathy displayed by the therapist or counselor. In particular, evidence of high levels of therapist empathy is associated with positive treatment outcomes. Also, the higher the level of counselor functioning in interpersonal skills, the better the treatment outcomes regarding relapse and abstinence.

Research Highlights:

- *The unexpected resignation of two counselors provided the basis for a natural experiment to examine the effects of counselor reassignment in a methadone maintenance treatment program-while treatment philosophy, clinic organization and management, medication, and take-home guidelines had not changed (McLellan et al., 1988). Sixty-one patients in a methadone maintenance treatment program who had been assigned to two addiction counselors who resigned were reassigned to four other counselors and examined with regard to urinalysis results, methadone doses, prescriptions for psychotropic medications, employment, and arrest rates. One counselor significantly reduced the average methadone dose of his caseload as well as the number of patients prescribed ancillary medications, while concurrently reducing positive urine tests, unemployment, and arrests. Another counselor significantly increased the average methadone dose in his caseload but still showed increases in positive urine tests and employment. Two counselors showed improvements in employment, drug use, and arrest rates in their caseloads while maintaining approximately the same average methadone dose and the same proportion of patients receiving psychotropic medications.*

- *The impact of counselor style was evaluated in a study involving the provision of a 2-session motivational checkup to 42 problem drinkers who were randomly assigned to three groups: (1) immediate checkup with directive-confrontational counseling, (2) immediate checkup with client-*

centered counseling, or (3) waiting-list control (Miller, Benefield, and Tonigan, 1993). The directive confrontational style yielded significantly more resistance from clients, which in turn predicted poorer outcomes at 1 year. Also, only one therapist behavior significantly predicted client behavior 1 year later: The more the therapist confronted the more the client drank. In general, client resistance behaviors were strongly correlated with therapist confrontational responses. Positive, self-motivational client responses, on the other hand, were related to therapist listening and restructuring.

Valle (1981) randomly assigned 247 first- time admissions to a hospital-based inpatient chemical dependency treatment program to eight counselors. All counselors {six men) were recovering alcoholics representing a variety of formal training and life experiences, and had been counselors for at least 2 years. All had maintained sobriety for at least 4 years and had attended an alcohol studies school or had equivalent training experience. The counselors were rated with regard to counselor-patient interactions, and on the interpersonal dimensions of accurate empathy, genuineness, concreteness, and respect. Counselors were rated as either (1) low functioning-that the response was not helpful, and that the counselor did not respond to the content or affect of the patient; (2) medium functioning- that the counselor responded to the content of the patients' expressions; or (3) high functioning-assigned when the counselor identified the content and affect of the patients expression and responded to it accurately. Analyses indicated that all the discrete relapse variables from the hospital file data were significantly influenced by counselor level of interpersonal functioning. Higher level of counselor interpersonal functioning was significantly associated with (1) less likelihood of relapse, (2) the fewer the times a patient did relapse, and (3) the fewer relapse days a patient had at 6, 12, 18, or 24 months after treatment.

- In a study by Luborsky et al. (1985), 18 drug counselors and 9 psychotherapists provided treatment for methadone maintenance treatment patients in three 6-month conditions: drug counseling (N = 39), drug counseling plus supportive-expressive psychotherapy (N = 32), and drug counseling plus cognitive-behavioral psychotherapy (N = 39). The study revealed that (1) patients in all groups improved (2) the addition of either form of psychotherapy to drug counseling resulted in significantly better during-treatment and posttreatment performance than counseling alone, and (3) the specific type of psychotherapy may be less potent in affecting change than therapist characteristics. While modest, the therapist characteristics associated with positive treatment outcomes included (1) the ability to form a warm, supportive relationship with the patient; (2) the therapist's personal adjustment and interest in helping the patient; and (3) the therapist's and patient's mutual sense of the potential benefits to be derived from therapy.

- A study by Miller, Taylor, and West (1980) was designed to evaluate the relative effectiveness of four treatment approaches to teach moderation to problem drinkers. Fifty-six clients were randomly assigned to either (1) the provision of written educational materials as treatment with self-help materials but no treatment sessions, (2) six weekly sessions of behavioral self-control training, (3) behavioral self-control training plus 12 sessions of relaxation, communication, and assertion training, or (4) behavioral self-control training plus 12 weeks of individually tailored broad-spectrum modules. With the exception of the written material condition, clients spending more hours per week intoxicated there were no other significant group differences. Overall, a pattern of general improvement on other dimensions was noted with no differences among groups. However, the degree to which therapists showed accurate empathy proved to be a good predictor of client outcome.

Patient Characteristics

Research has demonstrated that numerous patient variables are associated with the effectiveness of addiction treatment, regardless of the treatment approach or program setting. Overall, behaviors that indicate healthy psychosocial adjustment, such as active employment, an intact marriage, and a brief history of substance use, are associated with positive treatment outcomes.

Conversely, behaviors that indicate poor psychosocial adjustment, such as unemployment and criminal involvement, poorer social and economic supports, as well as concomitant psychiatric and AOD disorders and more severe addiction, are associated with negative treatment outcomes. Such patient variables are associated with worse performance during treatment and poorer outcomes following treatment (Gerstein and Harwood, 1990; Institute of Medicine, 1990).

Perhaps the most important predictor of overall treatment response for addicted patients is the severity of psychiatric problems. Regardless of the treatment approach or setting, patients with the fewest psychiatric problems at admission generally demonstrate the greatest improvement and the best treatment outcomes. Conversely, patients with the most severe psychiatric problems at admission generally demonstrate the least improvement and poorest results, regardless of treatment approach or setting. For some patients, such as those who have severe impairment from psychiatric disorders or who have intense levels of criminal involvement, brief treatment episodes generally yield limited benefit, while longer term and more intensive treatment are associated with significant improvement.

The extent to which patients comply with crucial aspects of treatment has great impact on the effectiveness of treatment. For example, a medication is unlikely to yield its pharmacologic effects unless it is taken in sufficient dosages and frequency. As a further example, disulfiram treatment is significantly more effective when accompanied by procedures to increase medication compliance. In fact, compliance with any treatment is predictive of more favorable outcomes. Thus, components of addiction treatment that promote patient compliance with a treatment procedure tend to result in superior outcomes (Miller, 1992).

Perhaps the least useful patient characteristic for planning treatment strategies, referral to an appropriate treatment approach, or predicting the overall outcome of treatment is the severity and duration of a patient's AOD disorder. Information regarding pretreatment psychiatric, employment, and legal problems is the most helpful in developing the most appropriate treatment strategies.

Research Highlights:

- *Rounsaville et al. (1982) evaluated the predictive significance of seven dimensions of patient characteristics (demographics, legal history, work history, drug use history, psychiatric diagnosis, psychological symptoms, and social functioning) as they relate to five treatment outcome factors (treatment retention, occupational functioning, illegal activity, illicit drug use, and psychological symptoms). The study, which involved multiple treatment outcomes of 123 opioid-addicted patients followed for 6 months after admission, indicated that the level of functioning at admission within a specific area was the best predictor of outcome in that area at follow-up, while no single predictor was significantly related to all of the outcome factors.*

- *Rounsaville and colleagues (1987) conducted a l-year follow-up study of 266 alcoholic patients who had received extensive psychiatric assessments during their index treatment episode. While*

coexisting psychiatric diagnoses generally predicted poorer addiction treatment outcome, there were significant interactions in the relationship between diagnoses and treatment outcomes. For men, an additional diagnosis of major depression, antisocial personality, or drug abuse was associated with poorer outcomes. For women, major depression was associated with a better outcome in drinking related measures, while antisocial personality disorder and drug abuse were associated with poorer prognosis.

- Studies by the Penn-VA group and others using the Ado'iction Severity Index have shown that pretreatment measures of patients' problems status in the areas of employment, family and social relations, and particularly psychiatric symptoms have been predictive of post trea tmen t functioning in both drug and alcohol-addicted patients in a variety of treatment approaches and settings (McLellan et al., 1985).

- McLellan et al.(1986) examined a sample of 181 patients from three addiction treatment programs to evaluate treatment outcome in relation to employment, family issues, and psychiatric problems. Patients included men, women, and adolescents from a variety of socioeconomic strata. Six months following treatment, 151 (84 percent} of the patients were recontacted and received a follow-up interview. The single best predictor of patients ' overall status at follow-up was the Addiction Severity Index psychiatric severity rating (a 1 O-point, global estimate of the number and severity of a patient 's psychiatric symp toms) at treatment admission.

Dosage Policies for Methadone Maintenance Treatment Programs

Within methadone maintenance treatment, research has shown that programs with policies of providing adequate methadone doses (typically 60 mg daily and higher) in a flexible manner dependent on the individual patient's progress will promote superior treatment outcomes in several areas. While studies vary, program policies that provide adequate methadone dosages are associated with such treatment outcomes as increased patient retention, decreased illicit opioid use, decreased criminal behavior, diminished incidence of HIV infection, and improvements in overall treatment progress.

Research Highlights:

- A study by Hartel et al. (1995) was designed to examine factors associated with heroin use during treatment among 652 patients in a methadone maintenance treatment program. Heroin use during the 3 months prior to the interview was shown to be greatest among (1) patients maintained on methadone dosages of less than 70 mg per day and (2) patients who used cocaine during treatment. In particular, patients maintained on dosages of less than 70 mg per day were twice as likely to use heroin during methadone maintenance treatment as were patients maintained on 70 or more mg per day.

- In the Ball and Ross studies (1991), illicit opioid use was directly related to methadone dosage levels. In patients on dosages above 71 mg per day, no heroin use was detected Patients on dosages below 46 mg were over five times more likely to use heroin than those on higher dosages.

- Brown et al.(1982-83) conducted a survey of 113 methadone maintenance treatment program administrators to examine the relationship bet ween methadone dosage policies and patient retention. The study revealed that programs with flexible dosage policies had greater treatment retention. For

example, programs with flexible dosage policies retained patients an average of almost 9 months longer than programs with rigid dosage polices.

- In a study of 2,400 patients enrolled in methadone maintenance treatment over a 15-year period those patients maintained on a daily dose of 60 mg or more had longer retention in treatment, less use of heroin and other drugs, including cocaine, and a lower incidence of HIV infection and AIDS (Hartel, Selwyn, and Schoenbaum, 1988a and 1988b).

- One study compared the treatment effectiveness of three methadone maintenance treatment programs, two of which used high doses (mean daily stabikzation doses of 82 and 95 mg), while the third had a policy of low doses (a daily mean of 43 mg) and a relatively strict policy of involuntary patient discharge for program violations. Retention in treatment was much longer for the two high-dose programs than the low-dose program. Also, patients in the high-dose programs had significantly fewer arrests, episodes of incarceration, self-reported criminal behavior, and opioid addiction (McGlothlin and Anglin, 1981).

- An Institute of Medicine review concluded that methadone dosages should be individually tailored and clinically monitored However, within the context of individuahzed treatment, most patients have substantially better responses when maintained at the higher levels rather than the lower levels of the dosage range currently being prescribed (30 to 100 mg per day) (Gerstein and Harwood, 1990).

Chapter Seven: Addiction Treatment and the Criminal Justice System

Studies indicate that 40 to 80 percent of prison inmates have serious substance use problems (Innes, 1988). Illicit drugs are detected in the urine of 40 to 80 percent of arrestees (Wish and Gropper, 1990), with similar rates observed from individuals on probation and in correctional institutions. Several programs of criminal diversion, corrections-based drug education and treatment, and supervision programs have been developed.

Criminal justice and AOD treatment alliances include:

- Mandated treatment
- Correctional treatment programs
- Court-referred treatment

Fortunately, addiction treatment for criminal justice clients is not uncommon. Unfortunately, because of insufficient resources, much of the existing addiction treatment for patients involved in the criminal justice system is inadequate. For example, two-thirds of prison treatment programs consist primarily of episodic individual or group counseling or therapy. Given the serious substance use problems in this population, this level of treatment, which resembles outpatient nonmethadone treatment, is generally not intensive enough to produce effective outcomes.

Within the prison settings, the therapeutic community and other residential treatment-based approaches with strong linkages to community-based treatment and supervision have been shown to be effective. Such programs can reduce the treated group's rate of rearrest by one-fourth to one-half. And, as is seen in studies of therapeutic communities, there are correlations between positive outcome rates and length of time in treatment.

Mandated Treatment

The concept of mandated or coerced treatment is not without controversy. A central issue is the effectiveness of treatment for criminal justice offenders who are coerced into addiction treatment. Some have argued that forcing people into treatment is not appropriate or effective, basing their arguments on philosophical grounds as well as constitutional and legal reasons. Others contend that addiction treatment is effective only when the addicted person has the motivation to change.

Clinical experience suggests, however, that few people voluntarily participate in addiction treatment without external motivation or coercion. Most people are driven into treatment because of severe adverse consequences such as addiction-related health problems or because of motivating factors such as a mandates from a spouse, an employer, or the criminal justice system. When viewed from this perspective, legal coercion is as justified as any other motivation for treatment entry.

But is mandated addiction treatment effective? Research shows that:

- Patients who are legally pressured to participate in addiction treatment have an increased likelihood of participating in treatment.
- Patients who are mandated to treatment tend to remain in treatment longer than if they were not mandated.

- Patients coerced into treatment have similar treatment outcomes as patients who voluntarily participate.

Research has shown that patients who are criminally involved have less favorable posttreatment outcomes generally than persons who are not. However, many studies demonstrate that retention in treatment is the best predictor of outcome, and other studies suggest that legal referral is a consistent predictor of retention. Thus, there is an indirect relationship between legal referral and outcome that appears to be mediated through retention in treatment. Further, it has been suggested that the retentionenhancing effect of a legal referral offsets the higher probability of negative outcomes among many criminally involved patients, perhaps explaining the similar outcomes for voluntary and legally referred patients (De Leon, 1988).

Research Highlights:

- *Data from the DARP studies indicate that coercion does not impair the effectiveness of addiction treatment. Indeed DARP demonstrated that patients with criminal justice system involvement performed as well as patients who voluntarily participated in treatment /Simpson and Friend 1988).*

- *One study divided methadone maintenance treatment patients into three groups: (1) a high coercion group was forced to participate in treatment, (2) a medium coercion group had moderate legal pressure to particma te in treatment, and (3) a low coercion group had rather mild legal pressure to participa te. Patients who were coerced into treatment had similar treatment outcomes as patients who participated voluntarily with regard to time employed daily narcotics use, and criminal involvement (Anglin, Brech t, and Maddanian, 1990)*

- *Research based on TOPS data examined the relationship between length of treatment and source of referral (Collins and Allison, 1983; Hubbard et al., 1988). This research focused on patients who entered outpatient nonmethadone and residential treatment programs through: (1) Treatment Alternatives to Street Crime (TASC) referral (2) non-TASC criminal justice system referral, or (3) voluntary participation (no criminal justice sys tern involvement). Research indicates that patients who are legally referred to treatment remain in treatment longer than, and do at least as well as, those who seek treatment voluntarily. Further, TASC referrals had a stronger effect on retention than any other referral. TASC referrals experienced an additional 6 to 7 weeks longer retention than non- TASC referrals.*

- *A study of 121 male veterans in a 90-day Veterans Administration drug rehabilita tion program compared court-referred and voluntary patients. Objec tive and subjective measures both indicated that the court-referred patient is potentially as responsive to treatment as the voluntary patient. Sixty-two percent of the court-referred patients were judged to have a good prognosis, compared with 58 percent of the voluntary patients (McLellan and Druley,1977).*

- *A time-series evaluation was conducted with nearly 1,000 addicted individuals who participated in the California Civil Addict Program examined the joint effect of civil commitment and methadone maintenance (Anglin,1988). The cohort, which was reinterviewed 25 years after admission to the program, demonstrated a robust effect of civil commitment on suppressing daily drug use and criminal involvement, as well as a moderate effect on related prosocial behaviors such as reductions in antisocial behavior and employment. However, supervision without drug testing had similar effects as no supervision, while outpatient supervision with drug testing demonstrated major reductions in*

drug use. Analysis revealed that civil commitment reduced daily drug use for three groups: active drug users, inactive drug users, and patients on methadone maintenance at the time of the follow-up interview.

- *In an analysis of several large studies that included or focused on therapeutic community treatment outcomes, De Leon (1988) noted that there is little evidence for differential outcomes between legally referred and nonlegally referred patients. He also no ted that time in treatment is the largest and most consistent predictor of treatment outcomes, and that legal referral to therapeutic communities is a consistent predictor of retention.*

Correctional Treatment Programs

The types of programs models and services available for addicted offenders in correctional settings include (1) incarceration with addiction education and/or addiction counseling, (2) incarceration with residential units dedicated to addiction treatment, (3) incarceration with offender-initiated or offender-maintained services, and (4) incarceration with specialized services that do not directly target offenders' substance use problems. In addition, there are models of service delivery that involve alternatives to incarceration, including routine probation, surveillance-only initiatives, and programs such as Treatment Alternatives to Street Crime (TASC) (Brown, 1992).

Several examples of treatment programs within the criminal justice system, including regional programs, State corrections departments programs, and Federal Bureau of Prison programs, are described in *Relapse Prevention and the Substance-Abusing Criminal Offender* (Gorski et al., 1993), which was published by the Center for Substance Abuse Treatment, as well as *Orug Abuse Treatment in Prisons and Jails* (Leukefeld and Tims, 1992), a research monograph published by the National institute on Drug Abuse.

A recent Institute of Medicine report concluded that addiction treatment in correctional settings is effective for addiction treatment and to curb criminal recidivism when the addiction treatment programs have the' following central features:,(l) a competent and committed staff, (2) the support of correctional authorities, (3) adequate resources, (4) a comprehensive, intensive course of therapy aimed at affecting the life-style of patients beyond their addiction, and (5) continuity of care after offenders are paroled (Falkin et al., 1992).

Perhaps the most effective, promising, and studied approach to addiction treatment within correction facilities are therapeutic communities. Overall, research suggests that (1) prison-based therapeutic communities are effective in reducing recidivism rates; (2) prison-based therapeutic communities are more effective than other prison treatment approaches such as milieu therapy and counseling; and (3) the longer that prison-based therapeutic community patients remain in the program, the more successful they are following release.

Research Highlights:

- *Stay'n Out is a prison-based therapeutic community treatment program in New York with a four unit, 146-bed prison program for men and a separate 40-bed program for women. A study compared 682 Stay'n Out patients (435 men and 247 women) from 1977 through 1984 with similar groups of drug-abusing and addicted prisoners (Wexler et al., 1992). The comparison groups of prisoners included (1) 573 men receiving milieu treatment with individual, group, and vocational counseling, and referral services; (2) 261 men who received short-term weekly individual or group counseling; (3) 113 women receiving short-term weekly individual or group counseling; (4) 159 untreated men; and (5) 38*

untreated women. The groups were followed through 1986 (thus, from 2 to 9 years after release from prison).

The most significant treatment outcomes relate to rearrest and time in treatment. The Stay'n Out therapeutic community patients were rearrested significantly less often than the other groups: There was a 22 to 35 percent reduction in rearrest rates for men and 25 to 40 percent reduction in rearrest rates for women. For example, after release on parole, only 27 percent of the male subjects Stay'n Out participants were rearrested compared with 41 percent of the prisoners who received no treatment. Importan tly, there was also a consistent and significant correlation between positive treatment outcomes and time in the therapeutic community, but not for the other treatment groups.

- *Cornerstone is a 32-bed modified therapeutic community treatment program for AOO-abusing inmates in the Oregon Corrections Department. It includes a mixture of therapeutic community and milieu therapy approaches, and is designed for State prisoners in the last year prior to eligibility for parole. Following release, parolees transition to a halfway house that includes therapeutic contacts. Evaluation of Corners tone patients has demonstrated the follo wing positive treatment outcomes: reduced criminal activity, and reduced criminal recidivism, enhanced self-esteem, reduced psychiatric symp toma tology, and increased knowledge in critical addic tion treatment areas (Field, 1985).*

  In a study of 209 unduplica ted program discharges, Cornerstone participants were divided into four experimental groups: (1) program graduates, (2) nongraduates who spent more than 6 months in the program, (3) nongraduates who spent more than 2 but less than 6 months in the program, and (4) nongradua tes who spent between 1 day and 2 months in the program (Field, 1992). The primary treatment outcomes studied included rates of avoiding any arrest, rates of avoiding any convictions, and rates of avoiding any prison time.

  The primary outcomes of the study were: (1) The Cornerstone graduates consistently exhibited superior outcomes than nongraduates; (2) addicted offenders who received little or no treatment exhibit an accelerating pattern of criminal activity over time; (3) time in treatment correlated positively with decreases in criminal activity; (4) many successfully treated addicted recidivist offenders continued to show at least some involvement with the criminal justice system after treatment even though their involvement was reduced

Court-Referred Treatment: TASC

The most massive effort designed to provide adjudicated individuals with addiction treatment involves court-ordered screening for the assessment of placement suitability for community-based treatment programs under pretrial or posttrial probation. The most prominent examples of such programs are the Treatment Alternatives to Street Crime (TASC) programs. As a bridge between the criminal justice and addiction treatment systems, TASK identifies, assesses, refers, and monitors addicted nonviolent offenders. Treatment serves as an alternative or supplement to the criminal justice system.

Generally, TASC staff use pretrial screenings to assess the treatment suitability and treatment needs of drug. involved arrestees identified through urine tests, a previous record of drug-related arrests, or interviews. The assessment is used to ensure that treatment would be offered to individuals who need and qualify for it.

When an accused individual is deemed suitable for treatment, and when both the prosecutor and court agree, the individual can accept referral to community-based treatment. When accepted, the pending case is suspended or a summary probation is issued. Upon successful completion of the program, the pending charges are dismissed or the probation is discharged.

TASC focuses on providing linkages to community treatment programming and, through such linkages, strives to make treatment opportunities available to addicted offenders. TASC programs are designed to identify, assess, refer, and monitor the treatment progress in community-based addiction treatment of AOO-addicted individuals who are accused or convicted of crimes.

Motivation of offenders to participate and remain in treatment involves diversionary dispositions such as deferred prosecution, creative community sentencing, and pretrial interventions. Dropping out of treatment or other noncompliance is treated by the courts as a violation of the conditions of release.

While research is limited, it suggests that:

- TASC programs are successful in identifying and referring previously untreated addicted offenders for screening, assessment, and treatment for AOD problems
- TASC programs intervene with offenders to reduce drug abuse and criminal activity
- TASC clients remain in treatment longer than individuals who have non-TASC legal involvement and those who have no legal involvement
- TASC provides a linkage between criminal justice and treatment systems, and provides less costly alternative to incarceration
- Through the use of case management, TASC programs are able to follow addicted offenders.

Research Highlights:

- *A 1976 study of 22 operational TASC sites found that only 8 percent of clients in all sites were known to have been rearrested for new offenses while in the TASC program (Lazar Institute, 1976). This study noted the broad-based support of the justice system gained by TASC and the support of the treatment system, because TASC's legally sanctioned referral mechanisms to treatment were more effective than informal treatment initiations.*
- *A subsequent evaluation of 12 TASC sites found that TASC programs were successful in prompting defendants to reduce AOD use and criminal activity, linking the criminal justice system with the AOD treatment system, identifying addicted but untreated offenders, improving defendants' treatment outcomes, and reducing rearrest rates (System Sciences, 1978). This evaluation noted that the majority of offenders were admitted to TASC prior to trial, and that the threat of legal sanctions added a positive factor to the treatment process.*
- *The TOPS data were analyzed with regard to the effect of TASC referral compared with other patient admission characteristics in residential and outpatient programs. After controlling for various preadmission characteristics, TASC referral had a positive effect on the length of stay in treatment.*

Compared with patients not referred by TASC, retention among TAX-referred patients was an average of 7 weeks longer in residential programs and 6 weeks longer for outpatient treatment (Collins and Allison, 1983; Hubbard et al., 1989).

- *A national TASC survey documented that in 1986 about two- thirds of TASC clients nationwide had never been involved in any type of AOD treatment program prior to their involvement with TASC. This suggests that TASC is successful in identifying and referring to treatment those offenders who have never received treatment (Tyon, 1988).*

Chapter Eight: Special Populations

Special populations include:

- Women
- Ethnic/cultural groups
- Adolescents

It is clear that treatment works. Research demonstrates, however, that certain people benefit more than others from specific treatment interventions. On the one hand, the addiction treatment system consists of an assortment of addiction treatment approaches, settings, and services. On the other hand, patients have both common and distinctive treatment needs that require individualized treatment plans and interventions. Thus, a challenge of treatment programming is to identify patient groups which members share common treatment needs and to provide treatment interventions that best meet those needs. Similarly, a challenge of treatment research is to identify through rigorous analysis the distinctive treatment needs of patient groups and to identify which groups benefit most from the available treatment interventions. Treatment and research partnerships also seek to develop new interventions that help meet the treatment needs of patients. These processes are integral for informed patient-treatment matching.

At the same time, changing demographics in the general population and among addicted people has prompted service providers and policy-makers to provide addiction treatment that best meets the treatment needs of people from such special populations as ethnic and cultural minority groups, women-including pregnant and parenting women, and adolescents. In particular, advocates have called for making the addiction treatment system culturally responsive, appropriate, and sensitive.

In order to do so, research must examine several areas related to the treatment of addicted patients from special populations, such as the following:

- The distinctive treatment needs of addicted patients in special populations-In other words, if they exist, what are the treatment needs experienced by most patients in special populations that are specifically related to their inclusion in a special population?

- The treatment interventions that best meet the needs of patients from special populations-For example, what specific treatment components should be provided to meet the treatment needs of patients from special populations?

- The optimal approaches and delivery of treatment interventions that best meet the needs of patients from special populations-In other words, how should the interventions for patients in special populations be delivered? What are the programmatic, philosophical, political, staffing, and administrative approaches that constitute cultural sensitive and appropriate treatment and heighten treatment outcomes?

- The outcomes of addicted patients from special populations who receive treatment at programs specifically designed for patients from special populations-Do these patients experience better treatment outcomes when treated at specially designed programs rather than to general treatment programs?

- The treatment outcomes of addicted patients from special populations who are treated in general addiction treatment programs-That is, within the context of the existing addiction treatment approaches, settings, and components, do patients from special populations have treatment outcomes that are better, worse, or the same as those of other patients?

At this point in the history of addiction treatment, these issues remain largely unexamined through rigorous research. Thus, while many providers are making valiant efforts to modify their programs to meet the distinctive needs of patients from special populations, they must do without the guidance of rigorous research.

With regard to women, ethnic and cultural minority groups, and adolescents, future research and the interpretation of existing research should ideally take into account: (1) the characteristics of the special population in treatment, (2) the characteristics and type of treatment approach, and (3) the outcome measures of treatment.

Women

A few studies have reported treatment outcome data by gender. Such studies have generally concluded that adult men and women treated together for alcoholism in the same program do about as well. There is less agreement regarding the less-researched area of addiction to drugs other than alcohol. However, pretreatment psychiatric problems appears to be a much better predictor of treatment outcome than gender for people addicted to AODs.

The addiction treatment literature has little to offer in the way of outcome studies of treatment designed specifically for women. Future research may compare addiction treatment designed for women with generic addiction treatment and identify those treatment services that are particularly important for the effective treatment of addicted women. Such research will likely reveal that there are numerous practical factors that can help some women become engaged, remain in, and successfully complete treatment.

Studies designed to evaluate factors influencing the treatment outcomes of women have noted the importance of supportive interpersonal relationships. Such research has demonstrated that the number of supportive relationships, the quality of relationships, as well as the number of life problems are among the best predictors of favorable treatment outcome for women.

Special Treatment Needs. Clinical experience suggests that women, more often than men, often have unmet basic needs relating to food, health care insurance, housing, transportation, and safety from battering or assault. Women, more often than men, must provide care for their children and may be prevented from entering treatment by lack of services such as day care, food, and shelter. Paradoxically, women are sometimes charged with child abuse and risk losing custody of their children when they request addiction treatment.

Clinical experience suggests that addiction treatment for women, especially for pregnant and parenting women, should include childcare services, transportation, perinatal medical care, and assessment for physical and sexual abuse. Treatment should address such issues as child rearing, physical and sexual abuse, childhood incest and molestation, dysfunctional adult relationships, shame and self-esteem, assertiveness, and vocational assessment and training. Addiction treatment for women should focus more on support, skill-building, and strength-identifying tasks than on confrontation.

Ethnic and Cultural Minority Groups

Research suggests that there are relationships between ethnicity and drugs of choice and between ethnicity and choice of treatment. For example, Hispanics are disproportionately represented in methadone programs for heroin addiction, and African Americans are disproportionately represented in terms of AOD problems and in residential programs, primarily for alcohol and cocaine addiction.

However, the limited available research suggests that overall, demographic variables such as ethnicity are not significantly related to treatment outcomes. There is no evidence that African Americans, Hispanics, or Asian-Pacific Islanders fare significantly better or worse in existing treatment programs than other groups.

There is evidence that ethnicity is less important in influencing outcomes as the community structure and environment. Also, pretreatment variables, such as employment and treatment type are more important than ethnicity in influencing treatment outcomes.

There appear to be weak associations between patient/counselor congruence (agreement regarding appraisal of the patient's problems and the most effective approaches for addressing them) among African Americans and Hispanics with regard to treatment compliance, improvement in the quality of life, primary AOD problems, and other problems-with one exception. There appears to be a significant correlation between appropriateness of service congruence and positive treatment outcomes for Hispanic men. Despite the modest associations overall, such results suggest that treatment outcomes may be enhanced when treatment is tailored according to the ethnic/sex classification of patients.

Special Treatment Needs. Clinical experience suggests that the use of culturally accepted institutions among ethnic and cultural minority groups should be identified and promoted as adjuncts to treatment and recovery. For instance, many treatment programs-especially inner-city programs treating African Americans and Hispanics-have created alliances with the local churches that have helped to strengthen recovery through fellowship, mentorship, community activism, spiritual guidance, and drug-free alternatives. Programs should become aware of the cultural norms of the special populations that they serve, especially those that are barriers to treatment and recovery. For instance, while open disclosure of AOD problems in group therapy and self-help groups is a stated treatment goal for patients and family members, for many Hispanics, it is culturally unacceptable to disclose family problems in a public forum. In order to meet the treatment needs of inner-city patients from special populations, programs may need to provide or identify fundamental educational services that address such issues as parenting, sex and sexuality, hygiene, household finances, and vocational training.

Adolescents

Adolescent addiction treatment outcome is a poorly studied area. Only a small number of controlled studies have addressed treatment outcomes for addicted adolescents. Most of the knowledge gained from such studies concerns predictors of treatment success or failure. This research suggests that involvement in educational programs as well as longer time in treatment are associated with the completion of treatment and overall treatment success. While limited, such information helps to make suggestions regarding treatment program components and matching patients to treatment.

Successful treatment outcomes for adolescents, like those for adults, are predicted by not being involved in criminal behavior, not being involved in polydrug use, and having fewer problems prior to the first using AODs.

Overall, adolescent treatment research suggests that treatment is better than not receiving treatment. Few comparisons of treatment method, however, have consistently demonstrated the superiority of one method over another. Posttreatment relapse rates are high, and more controlled studies of adolescent treatment that allow evaluation of the elements of treatment are needed (Catalano et al., 1990-91).

Special Treatment Needs. Clinical experience suggests that if treatment for adolescents is to have lasting effects, it must address substance-use related issues in concert with other problems such as concurrent psychiatric diagnoses, learning disorders, family interactions, internal conflicts, and normal developmental issues of adolescent development. Clinical staff should receive extensive training in adolescent development and developmental and psychiatric disorders. Clinical experience suggests that family therapy should be an integral aspect of addiction treatment for adolescents, and family members should participate fully in the adolescent's treatment, including participation in Al-Anon and other self-help programs. Treatment for adolescents must include ongoing participation in school, whether' through onsite schooling, tutoring, or other alternatives.

Research Highligh ts for Special Populations:

- *Macdonald (1987) examined the prognostic indicators of treatment outcome of 93 treated alcoholic women, especially the possible influence of social variables in recovery. At the I-year follow-up, the probably of being sober progressively dropped as the number of life problems (e.g. emotional, marital, sexual, medical, financial, child and job problems) in addition to alcoholism increased Among women with one such problem, 71 percent were sober and 29 percent were drinking at follow-up; among women with two problems, 67 percent were sober and 33 percent were drinking; among women with three or more, 36 percent were sober and 64 percent were drinking. Women who had many close and emotionally supportive rela tionships had better outcomes than those who were emotionally isolated Of the women who named six or more primary relationships at follow-up, 72 percent were sober compared with only 21 of those who reported two or less close relationshms. Further analyses suggest that the type and quality of support that is effective in terms of drinking outcome does not focus on drinking alone but on a broader-based support that combines help with drinking problems and general emotional support. In contrast, the number of individuals identified as "dysfunctional, " who either encouraged a female patient to drink or made it hard for her to resist, was significantly associated with outcome: Of those with one or more dysfunctional relationships, 36 were sober at follow-up compared to 67 percent of the women with no such relationshms. These findings regarding relationships suggest that the successful mobilization of such individuals during treatment and recovery may be critical to outcome. No personal characteristics (e.g., age, marital status, education, employment/ were significantly associated with drinking outcomes, although subjects aged 40 to 49 years were most likely to be sober. None of the three drinking variables examined (years of heavy drinking, years in which alcohol has caused problems, and previous treatment for alcoholism) were significan tly associated with outcomes.*

- *Rounsaville et al. (1982) evaluated the predictive significance of seven dimensions of patient characteristics (demographics, legal history, work history, drug use history, psychiatric diagnosis, psychological symptoms, and social functioning) as they relate to five treatment outcome factors*

(treatment retention, occupational functioning, illegal activity, illicit drug use, and psychological symptoms). The study, which involved multiple treatment outcomes of 123 opioid-addicted patients followed for 6 months after admission, indicated that women were more likely than men to remain in treatment and were less likely to have legal problems.

- A process evaluation study of a therapeutic community treatment program examined the effects of introducing a female-based therapeutic model on female and male patients (Stevens, Arbiter, and Glider, 1989). The programmatic modifications included adding a female program director and other female staff adding women's groups, and offering seminars on such topics as assertiveness training, survival skills, sexuality, current women's issues, politics, health promotion, and vocational opportunities. A female counselor was responsible for ensuring delivery of such women's services as medical care, child care, education, vocational assistance, and resettlement. The children of parenting women were allowed to reside in the program and were given individualized case plans. The program created incentives for male and female patients to treat each other favorably and encouraged total self-disclosure and responsibility for sexual relationship issues, such as abortion, rape, incest, and molestation-whether as victim or perpetrator. After 3 months, several changes were observed including women taking responsibility for initiating group meetings for women and men, an increase in positive interpersonal behaviors, a decrease in sexual harassment. Length of stay increased for women and men, and the number of drug-free ex-residents of both gender increased significantly.

- The CALDA TA study noted that, for each treatment approach studied (residential treatment programs, social model recovery houses, outpatient nonmethadone treatment programs, outpatient methadone maintenance treatment programs, and methadone de toxification programs), there were only slight or no differences in effectiveness between men and women, younger and older patients, or among African Americans, Hispanics, and Whites. However, the CALDATA study revealed ethnic differences in the selection of treatment types (and drugs of choice). Hispanics were disproportionately in methadone programs for heroin addiction and African Americans were disproportionately in residential programs primarily for alcohol and cocaine addiction, compared with non-Hispanic Whites and with African Americans in other types of treatment (Gerstein et al., 1994).

- A review of existing large longitudinal studies of treatment outcomes has, with few exceptions, found that demographic variables such as ethnicity are not significant predictors of treatment outcomes (Rouse, 1989).

- A large-scale study of outcomes in several treatment programs found that ethnicity of the patient was not as important in influencing outcomes as the community structure surrounding the treatment. Pretreatment variables such as employment and type of treatment were more important (Joe et al., 1983; Hanson, 19851.

- Rounsaville et al.(1982) evaluated the predictive significance of seven dimensions of patient characteristics [demographics, legal history, work history, drug use history, psychiatric diagnosis, psychological symptoms, and social functioning) as they relate to five treatment outcome factors (treatment retention, occupational functioning, illegal activity, illicit drug use, and psychological symptoms). The study, which involved multiple treatment outcomes of 123 opioid-addicted patients followed for 6 months after admission, indicated that Whites performed more successfully, although only in the areas of work and legal problems and not in drug use, symptoms, or program retention.

This suggests that Whites and non-Whites may adopt a different drug life-style, with Whites supporting their habits at least partly through jobs, and non-Whites relying more heavily on illicit means of support.

- Nurco et al. (1988) reviewed 897 individual addiction treatment programs operating in 25 drug treatment centers in Hawaii, Washington, Maryland New Jersey, Connecticut, and New York. In the study sample, 11.6 percent of the subjects were Hispanic, 37. 7 percent African American, and 49.6 White. The focus of the research was to evaluate treatment outcomes in relation to patient/counselor congruence. Congruence related to pa tient/counselor agreement regarding appraisal of the patient's problems and the most effective approaches for addressing them. Both the patient and counselor independently completed a questionnaire dealing with four content domains: (1) relative problem severity, (2) treatment goals to be attained (3) appropriateness of treatment services, and (4) an estimate of the degree to which the treatment was likely to be successful {confidence in trea tmen t).

  In general the extent of the relationships found for the congruence dimensions examined was slight and not statistically significan t. Although the association was modest, African Americans and Hispanics, and particularly African-American women, generally showed the greatest association between congruence and outcome, and whites-particularly white males-the least. Also, compliance, improvement in the quality of life, primary AOD problems, and primary nondrug problems were not significantly differentiated according to ethnicity or gender- with one exception. There was significant positive correlations between appropriateness of services congruence and positive outcomes for Hispanic-American males. For Hispanic-American females, congruence with respect to relative problem severity was related to positive outcomes for compliance with treatment (Nurco et al., 1988). Overall, results from this study suggest that treatment outcomes may be enhanced when treated is tailored according to the gender or ethnicity of patients.

- An evaluation of 27,141 patients admitted to Federally funded programs during the first 6 months of 1977 was based on 3,259 patients in 50 methadone maintenance treatment programs, 5,380 patients in 120 residential programs, and 18502 patients in 380 nonmethadone outpatient treatment programs (Brown, Joe, and Thompson, 1985). The study examined the role of majority and minority status for Blacks, Mexican-Americans, and Whites with regard to such outcome criteria variables as unfavorable discharge and time in treatment. Among the three treatment approaches, minority status had particular relevance for treatment retention and type of discharge at nonmethadone outpatient treatment programs. Whenever one group- whether African-Americans, Hispanics, or Whites-constituted more than 75 percent of the treatment population within nonmethadone outpatient treatment programs, they were retained in treatment for significantly longer periods than treatment patients of the other groups. Moreover, independent of other variables, majority group status accounted for a significant, if relatively small, portion of the variance explaining treatment retention in nonmethadone outpatient treatment in which Whites or African-Americans constituted 75 percent or more of the treatment population.

- A study of 100 chronic heroin users consecutively admitted to a methadone maintenance treatment program in San Antonio-88 percent were Hispanic-compared various measures at admission and 1 year later. One year after admission to methadone maintenance treatment: (1) only 4 percent continued to use heroin, (2) nearly 80 percent were still participating in treatment, and (3) the

employment rate increased to 65 percent (from 21 percent at admission) (Maddux and McDonald 1973).

- Savage and Simpson (1980) compared posttreatment outcomes of African-American, White, Mexican American, and Puerto Rican patients treated in a methadone maintenance treatment program. Both Hispanic groups had the highest rates of dropout, expulsion, or both, from their programs, as well as the lowest rates of treatment completion. Mexican Americans had the smallest decrease in heroin use from pretreatment levels and a higher rate of posttrea tmen t arrest and incarceration. Mexican Americans also had the highest rate of employment.

- Langrod et al. (1981) reported on 231 patients in a methadone maintenance treatment program in the southeast Bronx of New York City. They were surveyed at intake and 2 years later. Of the 321 patients, 162 (70 percent) were Puerto Rican; 137 (85 percent) were male and 25 (15 percent) were female. The program placed a high degree of emphasis on education, cultural sensitivity, social programs, and employment of bilingual/bicultural staff. At admission, 3 percent of the patients were employed while 54 percent were employed after admission. Seventy-one percent of the Puerto Rican group were retained in treatment during the 2-year period comparable with non-Hispanic patients in the program. Examination of urinalysis records for a 6-month period revealed that 75 percent of the patients were not using any drug other than methadone.

- Comparison of posttreatment outcomes among African-American, White, Mexican-American, and Puerto Rican patients in methadone maintenance treatment programs found higher rates of dropout from the program, more arrests, and smaller reductions of opioid use, but a higher level of employment among Mexican Americans than among members of other ethnic groups (Judson and Goldstein, 1982).

- Alford, Koehler, and Leonard (1991) evaluated the effectiveness of a traditional chemical dependency treatment program for adolescents in a study of 157 male and female adolescents aged 13 through 19. At 6 months following discharge, 71 and 79 percent of the males and females, respectively, who completed treatment were abstinent or essentially abstinent, compared with 37 and 30 percent noncompleters. Abstinence rates at 1 year were 48 and 70 percent for completers, and 44 and 28 percent for noncompleters, for males and females, respectively, Abstinence rates at 2 years were 40 and 61 percent for completers, and 37 and 27 percent for noncompleters, for males and females, respectively. With regard to general behavioral functioning, at 6 months, 45 percent of treatment completers were both abstinent and successfully functioning in school or work and in family-social activities.

- Grenier (1985) used a waiting-list control group experimental design to assess the efficacy of adolescent residential treatment for patients aged 9-21. The abstinence rate for the treatment group (65 percent) was significantly higher than the abstinence rate for the waiting list control group (14 percen t).

- Friedman and Glickman (1886) reported on outpatient program characteristics for successful treatment of adolescent addiction, as measured by reduction in drug use. Adolescents in 30 programs were assessed and 50 percent of the 5,789 adolescents dropped out before completion of treatment. The following characteristics of programs were found to predict the outcome to a statistically significant degree: having a special school for school dropouts; employing experienced

counselors; providing vocational, recreational, and birth control services; using therapies such as crisis intervention, gestalt therapy, music and art therapy, and group confrontation; and being perceived by the patient as allowing and encouraging free expression and spontaneous action.

- Rush (1979) conducted research on 2,940 adolescents and young adults in order to predict treatment outcomes. Most were treated in outpatient programs; I7 percent were in residential settings. The predictors of treatment success for adolescents in drug free outpatient clinics were enrollment in education and employment programs at time of admission. In contrast, delinquency (more felony arrests, more years of AOD use, and early initiation of AOD use) at admission was inversely correlated with productivity at discharge.

  In the same study, significant factors at admission that were positively related to completion of treatment were being (1) enrolled in an education program, (2) a nonopioid-abusing individual, and (3) older when the drug of abuse was first tried Delinquency was inversely correlated with completion of treatment.

Chapter Nine: Summary

There is an abundant body of research regarding addiction treatment effectiveness. This research includes substantial evidence for the effectiveness of addiction treatment relating to treatment outcomes, matching, variables, and services.

Treatment **works. It has positive effects on:**

- **AOD use**
- **Medical and physical health**
- **Psychosocial functioning**
- **Employment stability**
- **Criminal justice involvement**
- **Relapse prevention preparedness**

Treatment Outcomes

- Addiction treatment works: Patients in treatment typically reduce, if not stop, their AOD use. Such reductions often persist several months or years after treatment.

- Addiction treatment has a positive effect on physical health, psychosocial functioning, employment stability, criminal justice involvement, and prevention of relapse. Improvements in these areas are greatest when the treatment program provide services designed to directly address these issues.

Treatment Matching

- No single treatment approach, setting, or component will be effective for all people who seek treatment. Rather, patients-who have distinctive treatment needs-will experience greater or lesser treatment success at different programs. Differences in treatment success generally relate to the ability of the program to address patients' distinctive treatment needs.

- No single treatment approach, setting, or component is the most effective overall. Rather, there is an array of treatment strategies and services that enjoy a fair to good evidence of effectiveness. This suggests that programs should aggressively promote the concept of a continuum of care and provide easy access to other treatment approaches, settings, and services through inter-program alliances, networks, and case management efforts.

- The effectiveness of addiction treatment is in part related to the types and amounts of treatment components provided during treatment. The more comprehensive the treatment, the more treatment needs will be met, and the more successful will be the treatment.

- Matching patients to treatments holds promise for improving outcomes. While criteria for optimal matching are still developmental, interventions should be based on patients' treatment needs. This suggests the need for research regarding patient placement criteria and treatment outcomes.

- The setting in which addiction treatment is provided is not strongly associated with treatment outcomes. In particular, inpatient treatment has not been shown to be more effective than outpatient or intensive outpatient treatment overall. However, certain patients benefit differentially from inpatient treatment-patients with severe addiction, social instability, and severe psychopathology. Patients who are socially stable and with mild to moderate AOD problems benefit

most from noninpatient treatment. Overall, the substance and content of treatment have a greater impact than does the setting of the treatment.

- While several weeks of hospitalization is more intensive treatment than the average addicted patient needs (excluding intensive outpatient and aftercare), it is probably insufficient to meet the needs of severely addicted, socially deteriorated patients.

Treatment Variables

- Program characteristics associated with positive treatment outcomes include adequate funding and staffing, management and clinical staff efforts to ensure quality services, provision of adequate clinical treatment services, and flexible policies that emphasize individual treatment needs.

- Relapse is common following treatment. This suggests that the relapsing nature of addiction needs to be incorporated into addiction treatment. Treatment should not focus exclusively on the stabilization of patients over a short period of time. Rather, programs should aggressively retain patients in behavioral change interventions for significant periods of time and employ "booster" interventions.

- Evidence of high levels of therapist empathy and high levels of counselor functioning in interpersonal skills is associated with positive treatment outcomes.

- Patient behaviors that indicate healthy psychosocial adjustment, such as active employment, an intact marriage, and a brief history of substance use, are associated with positive treatment outcomes.

- Among patients in methadone maintenance treatment, patients stabilized on higher doses have better treatment outcomes than those on lower doses.

Treatment Services

- Medications, such as disulfiram and naltrexone, used to prevent spontaneous AOD use, are generally ineffective when used as the sole treatment, but are more effective when used by motivated patients in the context of a comprehensive treatment program.

- LAAM and buprenorphine show significant promise in the treatment of opioid addiction.

- When used in the context of a full treatment program, nicotine gum and nicotine transdermal patches can be effective adjuncts in the treatment of nicotine addiction.

- Behavioral relationship therapy can promote more rapid reductions in AOD use and enhance better maintenance of sobriety, enhance addiction treatment outcomes, and decrease the probability of treatment dropout.

- Behavioral contracting can be an effective adjunct to addiction treatment.

- Well-planned and consistently administered brief intervention treatment can have an overall impact comparable to that of more extensive counseling, perhaps especially for individuals who are problem drinkers.

- Relaxation techniques, stress management training, systematic desensitization, biofeedback, aerobic exercise, and cognitive strategies can be effective adjuncts to addiction treatment.

- Social skills training is an effective adjunct in promoting sobriety among patients who are deficient in social skills, and programs that provide social skills training yield significantly improved outcomes when added to traditional treatment.

- Cognitive-behavioral and social skills training relapse prevention efforts can reduce the frequency and severity of relapse.

- People who actively participate in AA are more likely to experience improvements with regard to drinking behavior and psychosocial adjustment than people who do not participate or who nominally participate.

- individual psychotherapy may benefit most those patients with high levels of psychopathology. Among people who receive individual psychotherapy, the type of therapy may be less important than the act of receiving therapy.

- Future treatment outcome research should assess the potential relationships between types of treatment settings and such factors as patient variables, therapist variables, and treatment components.

References

Abdul-Quader, A.S., Friedman, S.R., Des Jarlais, D., Marmor, M.M., Maslansky, R., and Bartelme, S. Methadone maintenance and behavior by intravenous drug users that can transmit HIV. *Contemporary Drug Problems* **Fall:425-434,** 1987.

Ahles, T.A., Schundt, D.G., Prud, D.M., and Rychtarik, R.G. Impact of aftercare arrangements on the maintenance of treatment success in abusive drinkers. *Addictive Behaviors* **8:53-58,** 1983.

Alford, G.S. Alcoholics Anonymous: An empirical outcome study. *Addictive Behaviors* **5:359-370,** 1980.

Alford, G.S., Koehler, R.A., and Leonard, J. Alcoholics Anonymous-Narcotics Anonymous model of inpatient treatment of chemically dependent adolescents: A **2-year** outcome study. *Journal of Studies on Alcohol* **52:118-126,** *1991.*

Alterman, A.I., and **McLellan,** A.T. Inpatient and day hospital treatment services for cocaine and alcohol dependence. *Journal of Substance Abuse Treatment* **10:269-275,** 1993.

Anglin, M.D. The efficacy of civil commitment in creating narcotics addiction. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Compulsory Treatment of Drug Abuse: Research and Clinical Practice.* **NIDA** Research Monograph 86. Rockvile, MD: National Institute on Drug Abuse, 1988.

Anglin, M.D., M.L. Brecht, and E. Maddahian. Pretreatment characteristics and treatment performance of legally coerced versus voluntary methadone maintenance admissions. *Criminology* **27:537-57,** 1990.

Anglin, M.D., and Hser, Y.I. Treatment of drug abuse. In: Tonry, M. and Wilson, J.D. (Eds.) *Drugs and Crime* Chicago: University of Chicago Press, 1990. pp. **393-460.**

Anglin, M.D., Speckart, M.W., Booth, M.W., and Ryan, T.M. Consequences and costs of shutting off methadone. *Addictive Behaviors* **14:307-326,** 1989.

Annis, H., and Davis, C. Relapse prevention training. A cognitive-behavioral approach based on self-efficacy theory. *Journal of Chemical Dependency Treatment* **2(2):81-1***04, 1989.*

Azrin, N.H., Sisson, R.W., Meyers, R., and Godley, M. Alcoholism treatment by disulfiram and community reinforcement therapy. *Journal of Behavioral, Therapeutic, and Experimental Psychiatry* **13:105-1***12,* 1982.

Bale, R.N., Van Stone, W.W., Kuldau, J.M., Engelsing, T.J.J., Elashoff, R.M., and Zarcone, V.P. Therapeutic communities vs methadone maintenance. A prospective controlled study of narcotic addiction treatment: Design and one-year follow-up. *Archives of Genera/ Psychiatry* **37:179-193,** 1980.

Ball, J.C., and Corty, E. Basic issues pertaining to the effectiveness of methadone maintenance treatment. In Leukefeld, C.G., and Tims, F.M. (Eds.) *Compulsory Treatment of Drug Abuse: Research and Clinical Practice.* **NIDA** Research Monograph 88. Rockville, MD: National Institute on Drug Abuse, 1988.

Ball, J.C., and Ross, A. (Eds.) *The Effectiveness of Methadone Maintenance Treatment: Patients, Programs, Services, & Outcome. New* York: Springer-Verlag, 1991.

Ball, J.C., Lange, W.R., Meyers, C.P., and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *Journal of Health and Social Behavior* 29:214-226, 1968.

Belasco, J., and Trice, H. *The Assessment of Change in Training and Therapy. New* York: McGraw-Hill, 1969.

Bien, T.H., Miller, W.R., and Tonigan, J.S. Brief interventions for alcohol problems: A review. *Addiction* 88:315-336, 1993.

Blaine, J.D. (Ed.). *Buprenorphine: An Alternative Treatment for Opioid Dependence.* Rockville, MD: National Institute on Drug Abuse, 1992.

Bowers, T.G., and Al-Redha, M.R. A comparison of outcome with group/marital and standard/individual therapies with alcoholics. *Journal of Studies on Alcohol* 51:301-309, 1990.

Brown, B.S. Program models. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Drug Abuse Treatment in Prisons and Jails.* NIDA Research Monograph 118. Rockville, MD: National Institute on Drug Abuse, 1992. pp. 31-37.

Brown, B.S., Joe, G.W., and Thompson, P. Minority group status and treatment retention. *International Journal of the Addictions* 20:319-335, 1985.

Brown, B.S., Watters, J.K., Iglehart, A.S., and Akins, C. Methadone maintenance dosage levels and program retention. *American Journal of Drug and Alcohol Abuse* 9(2):129-I 39, 1982-83.

Catalano, R.F., Hawkins, J.D., Wells, E.A., Miller, J., and Brewer, D. Evaluation of the effectiveness of adolescent drug abuse treatment, assessment of risks for relapse, and promising approaches for relapse prevention. *International Journal of the Addictions* 25(9A & 10A):1085-1140, 1990-I 991.

Chaney, E.R., O'Leary, M.R., and Marlatt, G.A. Skill training with alcoholics. *Journal of Consulting and Clinical Psychology* 46:1092-I 104, 1978.

Chapman, P.L.H., and Huygens, I. An evaluation of three treatment programmes for alcoholism: An experimental study with 6- and 18-month follow-up. *British Journal of Addiction* 83:67-81, 1988.

Collins, J.J., and Allison, M. Legal coercion and retention in drug abuse treatment. *Hospital and Community Psychiatry* 34(12):1145-1 149, 1983.

Corder, B.F., Corder, R.F., and Laidlaw, N.D. An intensive treatment program for alcoholics and their wives. *Ouarterly Journal of Studies on* Alcohol 33: 1144- 1146, 1972.

Coyne, F. Evolution of the Burlington Northern Employee Assistance Program. In: Spicer, J. (Ed.) *Drugs in the Workplace: Research and Evaluation Data.* NIDA Research Monograph 91. Rockville, MD: National Institute on Drug Abuse, 1987.

Daley, D.C., and Marlatt, G.A. Relapse prevention: cognitive and behavioral interventions. In: J.H. Lowinson, P. Ruiz, and R.B. Millman. Substance Abuse: *A Comprehensive Textbook.* Second Edition. Baltimore, MD: Williams & Wilkins, 1992. pp. *533-542.*

De Leon, G. *The Therapeutic Community: Study of Effectiveness, Social and Psychological Adjustment of 400 Dropouts and 100 Graduates from the Phoenix House Therapeutic Community.* Rockville, MD: National Institute on Drug Abuse, 1984.

De Leon, G. Legal pressure in therapeutic communities. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Compulsory Treatment of Drug Abuse: Research and Clinical Practice.* NIDA Research Monograph 86. Rockville, MD: National Institute on Drug Abuse, 1988. pp.160-177.

Des Jarlais, D.C., Friedman, S.R., and Ward, T.P. Harm reduction: A public health response to the AIDS epidemic among injecting drug users. *Annual Review of Public Health* 14:413-450, 1993.

Dole, V.P., and Nyswander, M.E. A medical treatment for diacetyl-morphine (heroin) addiction. *Journal of the American Medical Association* 193:80-84, 1965.

Dole, V.P., Nyswander, M.E., and Kreek, M.J. Narcotic Blockade. *Archives of Internal Medicine* 118:304-*309, 1966.*

Donovan, D.M., and Mattson, M.E. Alcoholism treatment matching research: Methodological and clinical issues. *Journal of Studies on Alcohol* Supplement 12:5-14, 1994.

Drummond, D.C., Thorn, B., Brown, C., Edwards, G., and Mullan, J. Specialist versus general practitioner treatment of problem drinkers. *Lancet* 336:915-918, 1990.

Edwards, G., and Guthrie, S. A comparison of inpatient and outpatient treatment of alcohol dependency. *Lancet* 1:467-468, 1966.

Edwards, G., and Guthrie, S. A controlled trial of inpatient and outpatient treatment of alcohol dependency. *Lancet* 1:555-559, 1967.

Edwards, G., Orford, J., Egert, S., Guthrie, S., Hawker, A., Hensman, C., Mitcheson, M., Oppenheimer, E., and Taylor, C. Alcoholism: A controlled trial of "treatment" and "advice." *Journal of Studies on Alcohol* 38:1004-1031, 1977.

Edwards, G., Duckitt, A., Oppenheimer, E., Sheehan, M., and Taylor, C. What happens to alcoholics? *Lancet* 2:269-271, 1983.

Emrick, C. Alcoholics Anonymous: Affiliation process and effectiveness as treatment. *Alcoholism NY* 11:416-423, 1987.

Eriksen, L., Bjornstad, S., and Gotestam, K.G. Social skills training in groups for alcoholics: One-year treatment outcome for groups and individuals. *Addictive Behaviors* 11:309-330, 1988.

Falkin, G.P., Wexler, H.K., and Lipton, D.S. Drug treatment in State prisons. In: *Extent and Adequacy of Insurance Coverage for Substance Abuse Services. Institute of Medicine Report: Treating Drug Problems. Volume 2: Commissioned Papers on Historical, Institutional, and Economic Context of Drug Treatment.* Rockville, MD: National Institute on Drug Abuse, 1992. pp. 59-88.

Ferrell, W.L., and Galassi, J.P. Assertion training and human relations training in the treatment of chronic alcoholics. *International Journal of the Addictions* 16:959-968, 1981.

Field, G. The Cornerstone program. A client outcome study. *Federal Probation* 49:50-55, 1985.

Field, G. Oregon prison drug treatment programs. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Drug Abuse Treatment in Prisons and Jails.* NIDA Research Monograph 118. Rockville, MD: National institute on Drug Abuse, 1992. pp. 142-155.

Fink, E.B., Longabaugh, R., McCrady, B.M., Stout, R.L., Beattie, M., Ruggieri-Authelet, A., and McNeil, D. Effectiveness of alcoholism treatment in partial versus inpatient settings: Twenty-four month outcomes. *Addictive Behaviors* 10:235-248, 1985.

Fiore, M.C., Jorenby, D.E., Baker, T.B., and Kenford, S.L. Tobacco dependence and the nicotine patch. Clinical guidelines for effective use. *Journal of the American Medical Association* 268(19):2687-2694, 1992.

French, M.T., and Zarkin, G.A. The effects of drug abuse treatment on legal and illegal earnings. *Contemporary Policy Issues* 10(2):98-110, 1992.

French, M.T., Zarkin, G.A., Hubbard, R.L., and Rachal, J.V. The effects of time in drug abuse treatment and employment on posttreatment drug use and criminal activity. *American Journal of Drug and Alcohol Abuse* 19(1):19-33, 1993.

Friedman, AS. and Glickman, N.W. Program characteristics for successful treatment of adolescent drug abuse. *Journal of Nervous and Mental Disease* 174:669-679, 1986.

Fuller, R.K., Branchey, L., Brightwell, D.R., Derman, R.M., Emrick, C.D., Iber, F.L., James, K.E., Lacoursiere, R.B., Lee, K.K., Lowenstam, I., Maany, I., Neiderheiser, D., Nocks, J.J., and Shaw, S. Disulfiram treatment of alcoholism: A Veterans Administration cooperative study. *Journal of the American Medical Association* 256:1449-1455, 1986.

Gastfriend, D.R., Mendelson, J.H., Mello, N.K., and Teoh, S.K. Preliminary results of an open trial of buprenorphine in the outpatient treatment of combined heroin and cocaine dependence. In: Harris, L.S. (Ed.) *Problems of Drug Dependence 1990.* NIDA Research Monograph 105. Rockville, MD: National Institute on Drug Abuse, 1991. pp. 461.

Gearing, F.G. Methadone maintenance treatment five years later-Where are they now? *American Journal of Public Health Supplement* 64:44-50, 1974.

Geller, A. Rehabilitation programs and halfway houses. In: Lowinson, J.H., Ruiz, P., and Millman, R.B. *Substance Abuse: A Comprehensive Textbook.* Second Edition. Baltimore, MD: Williams & Wilkins, 1992.

Gerstein, D., and Harwood, H. (Eds.) *Treating Drug Problems* (Vol. 1) Washington, DC: National Academy Press, 1990.

Gerstein, DR., Johnson, R.A., Harwood, H.J., Fountain, D., Suter, N., and Malloy, K. *Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA).* Sacramento, CA: California Department of Alcohol and Drug Programs, 1994.

Gerstein, L., Eichenhofer, D., Bayer, G., Valutis, W., and Jankowski, J. EAP referral training and supervisor's beliefs about troubled workers. *Employee Assistance Quarterly* 4:15-30, 1989.

Gerstein, L.H., Eichenhofer, D.J., Bayer, G.A., Valutis, W., and Jankowski, J. EAP referral training and supervisors' beliefs about troubled workers. *Employee Assistance Quarterly* 4:15-30, 1989.

Gorski, T.T., Kelley, J.M., Havens, L., and Peters, R.H. *Relapse Prevention and the Substance-Abusing Criminal Offender.* Technical Assistance Publication Series 8. Rockville, MD: Center for Substance Abuse Treatment, 1993.

Grenier, C. Treatment effectiveness in an adolescent chemical dependency treatment program: A quasi-experimental design. *International Journal of the Addictions* 20:381-391, 1985.

Hanson, B. Drug treatment effectiveness: Case of racial and ethnic minorities in America-Some research questions and proposals. *International Journal of the Addictions* 20:99-137, 1985.

Harlow, L.L., and Anglin, M.D. Time series design to evaluate effectiveness of methadone maintenance intervention. *Journal of Drug Education* 14(1):53-72, 1984.

Hartel, D.M., Schoenbaum, E.E., Selwyn, P.A., Kline, J., Davenny, K., Klein, R.S., and Friedland, G.H. Heroin use during methadone maintenance treatment: The importance of methadone dose and cocaine use. *American Journal of Public Health* 85:83-88, 1995.

Hartel, D.M., Selwyn, P.A., and Schoenbaum, E.E. Temporal patterns of cocaine use and AIDS in intravenous drug users in methadone maintenance [Abstract 85261. Fourth International Conference on AIDS, Stockholm, Sweden, June 1988a.

Hartel, D.M., Selwyn, P.A., and Schoenbaum, E.E. Methadone maintenance treatment and reduced risk of AIDS and AIDS-specific mortality in intravenous drug users. Abstract No. 8546. Fourth International Conference on AIDS, Stockholm, Sweden, June 1988b.

Hedberg, A.G., and Campbell, L.M. A comparison of four behavioral treatment approaches to alcoholism. *Journal of Behavior Therapy and Experimental Psychiatry* 5:251-256, 1974.

Higgins, S.T., Delaney, D., Budney, A., Bickel, W.K., Hughes, J.R., Foerg, F., and Fenwick, J.W. A behavioral approach to achieving initial cocaine abstinence. *American Journal of Psychiatry* 148: 12 18-l 224, 1991.

Hjalmarson, A.I.M. Effect of nicotine chewing gum in smoking cessation-A randomized placebo-controlled, double-blind study. *Journal of the American Medical Association* 252:2835-2838, 1984.

Hoffman, N.G., Harrison, P.A., Belille, C.A. Alcoholics Anonymous after treatment: Attendance and abstinence. *international Journal of the Addictions* 18:31*l-31 8,* 1983.

Hoffman, N.G., and Miller, N.S. Treatment outcomes for abstinence-based programs. *Psychiatric Annals* 22(8):402-408, 1992.

Hoffman, N.G., and Miller, N.S. Perspectives of effective treatments for alcohol and drug disorders. *Psychiatric Clinics of North America* 16(1):127-140, 1993.

Hubbard, R.L., Rachel, J.V., Craddock, S.G., and Cavanaugh, E.R. Treatment outcome prospective study (TOPS): Client characteristics and behaviors before, during, and after treatment. In: Tims, F.M., and Ludford, J.P. (Eds.) *Drug Abuse Treatment Evaluation: Strategies, Progress and Prospects.* NIDA Research Monograph 51. Rockville, MD: National Institute on Drug Abuse, 1984.

Hubbard, R.L., Collins, J.J., Rachal, J.V., and Cavanaugh, E.R. The criminal justice client in drug abuse treatment. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Compulsory Treatment of Drug Abuse: Research and Clinical Practice.* NIDA Research Monograph 86. Rockville, MD: National Institute on Drug Abuse, 1988. pp. 57-80.

Hubbard, R.L., Marsden, M.E., Rachal, J.V., Harwood, H.J., Cavanaugh, E.R., and Ginzburg, H.M. *Drug Abuse Treatment: A National Study of Effectiveness.* Chapel Hill, NC: The University of North Carolina Press, 1989.

Inciardi, J.A., Tims, F.M., and Fletcher, B. *Innovative Approaches to the Treatment of Drug Abuse: Program Models and Strategies.* Westport, CT: Greenwood, 1993.

Innes, C.A. *Drug Use and Crime.* Washington, DC: Department of Justice, Bureau of Justice Statistics, 1988.

Institute of Medicine. *Broadening the Base of Treatment for Alcohol Problems.* Washington, DC: National Academy Press, 1990.

Ito, J.R., Donovan, D.M., and Hall, J.J. Relapse prevention and alcohol aftercare: Effects on drinking outcome, change process, and aftercare attendance. *British Journal of Addiction* 83:171-181, 1988.

Jarvis, M.J., Raw, M., and Russel, M.A.H. Randomized, controlled trial of nicotine chewing gum. *British Medical Journal* 285:537-540, 1982.

Joe, G.W., B.K. Singh, W. Lehman, D.D. Simpson, and S.B. Sells. Agency differences in posttreatment outcomes: A follow-up of drug abuse treatment. *International Journal of the Addictions* 18(4):523-538, 1983.

Johnson, R.E., Fudala, P.J., and Jaffe, J.H. Outpatient comparison of buprenorphine and methadone maintenance. I. Effects on opiate use and self-reported adverse effects and withdrawal symptomatology. In Harris, L.S. (Ed.) *Problems of Drug Dependence 1990.* NIDA Research Monograph 105. Rockville, MD: National Institute on Drug Abuse, 1991. pp. 585-586.

Johnson, R.E., Jaffe, J.H., and Fudala, P.J. A controlled trial of buprenorphine treatment for opioid dependence. *Journal of the American Medical Association* 267:2750-2755, *1992.*

Jones, S.L., Kanfer, R., and Lanyon, R.I. Skill training with alcoholics: A clinical extension. *Addictive Behaviors* 7:285-290, *1982.*

Judson, B.A., and Goldstein, A. Prediction of long-term outcome for heroin addicts admitted to a methadone maintenance program. *Drug and Alcohol Dependence* 10:383-391, 1982.

Keane, T.M., Foy, D.W., Nunn, B., and Rychtarik, R.G. Spouse contracting to increase antabuse compliance in alcoholic veterans. *Journal of Clinical Psychology* 40:340-344, *1984.*

Keso, L. and Salaspuro, M. Inpatient treatment of employed alcoholics: A randomized clinical trial on Hazelden-type and traditional treatment. *Alcoholism: Clinical and Experimental Research.* 14:584-589, 1990.

Khalsa, H.K., and Anglin, M.D. Treatment effectiveness for cocaine abuse. In: *Cocaine Today and Its Effects on the Individual and Society.* United Nations Interregional Crime and Research Institute Monograph Number 44, 1991. pp. 89-98.

Kissin, B., Platz, A., and Su, W.H. Social and psychological factors in the treatment of chronic alcoholism. *Journal of Psychiatric Research 8:* 13-27, 1970.

Kofoed, L.L. Chemical monitoring of disulfiram compliance: A study of alcoholic outpatients. *Alcoholism: Clinical and Experimental Research* 11:481-485, 1987.

Kosten, T.R. Clinical and research perspectives on cocaine abuse: The pharmacotherapy of cocaine abuse. In: Tims, F.M., and Leukefeld, C.G. *Cocaine Treatment: Research and Clinical Perspectives.* Rockville, MD: National Institute on Drug Abuse, 1993.

Kosten, T.R., Morgan, C., and Kleber, H.D. Phase II clinical trials of buprenorphine: Detoxification and induction onto naltrexone. In: Blaine, J.D. (Ed.). *Buprenorphine: An Alternative Treatment for Opioid Dependence.* Rockville, MD: National Institute on Drug Abuse, 1992.

Kosten T.R., Rosen, M.I. Schottenfeld, R., and Ziedonis, D. Buprenorphine for cocaine and opiate dependence. *Psychopharmacology Bulletin 28:* 15-I 9, 1992.

Kosten, T.R., Schottenfeld, R., Ziedonis, D., and Falcioni, J. Buprenorphine versus methadone maintenance for opioid dependence. *The Journal of Nervous and Mental Disease* 181:358-364, 1993.

Kurtz, N.R., Googins, B., and Howard, WC. Measuring the success of occupational alcoholism programs. *Journal of Studies on Alcohol* 45:33-45, 1984.

Lam, W., Sze, P.C., Sacks, H.S., and Chalmers, T.C. Meta-analysis of randomized controlled trials of nicotine chewing gum. *Lancet* 2:27-30, 1987.

Langrod, J., Alksne, L., Lowinson, J., and Ruiz, P. Rehabilitation of the Puerto Rican addict: A cultural perspective. *International Journal of the Addictions* 16(5):841-845, 1981.

Lazar Institute. *Phase I Report, Treatment Alternatives to Street Crime (TASC) National Evaluation Program.* Washington, DC: Law Enforcement Assistance Administration, 1976.

Lerner, A., Sigal, M., Bacalu, A., and Shiff, R. A naltrexone double blind placebo controlled study in Israel. *Israeli Journal of Psychiatry and Related Sciences* 29:36-43, 1992.

Leukefeld, C.G., and Tims, F.M. (Eds.) *Drug Abuse Treatment in Prisons and Jails.* NIDA Research Monograph 118. Rockville, MD: National Institute on Drug Abuse, 1992.

Ling, W., and Blaine, J.D. The use of LAAM in treatment. In: Dupont, R.L., Goldstein, A., and O'Donnell, J. (Eds.) *Handbook on Drug Abuse.* Rockville, MD: National Institute on Drug Abuse, 1979.

Ling, W., Charuvastra, V.C., Kaim, S.C., and Klett, J. Acetylmethadol and methadone as maintenance treatment for heroin addicts. A Veterans Administration Cooperative study. *Archives of General Psychiatry* 33:709-720, 1976.

Ling, W., Klett, C.J., and Gillis, R.D. A cooperative study of methadyl acetate. *Archives of General Psychiatry* 35:345-353, 1978.

Longabaugh, R. McCrady, B., Fink, E., Stout, R., McAuley, T., Doyle, C. and McNeill, D. Cost-effectiveness of alcoholism treatment in partial vs. inpatient settings: Six-month outcomes. *Journal of Studies on Alcohol* 44:1049-1071, 1983.

Longshore, D., Hsieh, S., Danila, B., and Anglin, M.D. Methadone maintenance and needle/syringe sharing. *The International Journal of the Addictions* 28(10):983-996, 1993.

Longshore, D., Hsieh, S., and Anglin, M.D. Reducing HIV risk behavior among injection drug users: Effect of methadone maintenance treatment on number of sex partners. *The International Journal of the Addictions* 29(6):741-757, 1994.

Luborsky, L., McLellan, A.T., Woody, G.E., O'Brien, C.P., and Auerbach, A. Therapist success and its determinants. *Archives of General Psychiatry* 42:602-611, 1985.

Macdonald, J.G. Predictors of treatment outcome for alcoholic women. *International Journal of the Addictions* 22:235-248, 1987.

Maddux, J.F., and Desmond, D.P. Crime and treatment of heroin users. The *International Journal of the Addictions* 14(7):891-904, 1979

Maddux, J.F., and Desmond, D.P. Ten-year follow-up after admission to methadone maintenance. *American Journal of Drug and Alcohol Abuse* 18(3):289-303, 1992.

Maddux, J.F., and McDonald, L.K. Status of 100 San Antonio addicts one year after admission to methadone maintenance. *Drug forum* 2:239-252, 1973.

Magura, S., Shapiro, J.L., Grossman, J.I., and Lipton, D.S. Education/support groups for AIDS prevention with at-risk clients. *Social Casework: The Journal of Contemporary Social Work* January:10-20, *1989.*

McCaughrin, W.C., and Price, R.H. Effective outpatient drug treatment organizations: Program features and selection effects. *International Journal of the Addictions* 27(*11*):1135-1358, 1992.

McGlothlin, W.H., and Anglin, M.D. Long-term follow-up of clients of high- and low-dose methadone programs. *Archives of General Psychiatry* 38:1055-1063,1981.

McLachlan, J.F.C., and Stein, R.L. Evaluation of a day clinic for alcoholics. *Journal of Studies on Alcohol* 43:261-272, 1982.

Mclellan, A.T., Alterman, A.I., Cacciola, J., Metzger, D., and O'Brien, C.P. A new measure of substance abuse treatment: Initial studies of the Treatment Services Review. *The Journal of Nervous and Mental Disease* 180:101-110, 1992.

Mclellan, A.T., Arndt, I.O., Metzger, D.S., Woody, G.E., and O'Brien, C.P. The effects of psychosocial services in substance abuse treatment. *Journal of the American Medical Association* 269(15):1953-*1959,* 1993b.

Mclellan, A.T., Cacciola, J., Kushner, H., Peters, F., Smith, I., and Pettinati, H. The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment* 9:199-213, 1992.

Mclellan, A.T., and Druley, K.A. A comparative study of response to treatment in court-referred and voluntary drug patients. *Hospital and Community Psychiatry* 28:241-245, 1977.

Mclellan, A.T., Grissom, G.R., Brill, P., Durell, J., Metzger, D.S., and O'Brien, C.P. Private substance abuse treatments: Are some programs more effective than others? *Journal of Substance Abuse Treatment* 10:243-254, 1993a.

Mclellan, A.T., Luborsky, L., Cacciola, J., Griffith, J.E., Evans, F., Barr, H., and O'Brien, C.P. New data from the addiction severity index: Reliability and validity in three centers. *Journal of Nervous and Mental Disease* 173:412-423, *1985.*

Mclellan, A.T., Luborsky, L., O'Brien, C.P., Barr. H.L., and Evans, F. Alcohol and drug abuse treatment in three different populations: Is there improvement and is it predictable? *American Journal of Drug and Alcohol Abuse* 12:101-120, *1986.*

Mclellan, A.T., Woody, G.E., Luborsky, L., and O'Brien, C.P. Is treatment for substance abuse effective? *Journal of the American Medical Association* 247:1423-1428, 1982.

Mclellan, A.T., O'Brien, C.P., Metzger, O., Alterman, A.I., Cornish, J., and Urschel, H. How effective is substance abuse treatment-Compared to what? In: O'Brien, C.P. and Jaffe, J.H. (Eds.) *Addictive States. New* York: Raven Press, 1992. pp. 231-252.

Mclellan, A.T., Luborsky, L., Woody, G.E., Luborsky, L., and O'Brien, C.P. Is the counselor an "active ingredient" in substance abuse treatment? *Journal of Nervous and Mental Disease* 176:423-430, 1988.

Mclellan, A.T., Woody, G.E., Luborsky, L., O'Brien, C.P., and Oruley, K.A. Increased effectiveness of substance abuse treatment: A prospective study of patient-treatment "matching." *The Journal of Nervous and Mental Disease* 171:597-605, *1983.*

McCrady, B.S., Noel, N.E., Abrams, D.B., Stout, R.L., Nelson, H.F., and Hay, W.M. Comparative effectiveness of three types of spouse involvement in outpatient behavioral alcoholism treatment. *Journal of Studies on Alcohol* 47:459-467, 1986.

McCrady, B.S., Paolino, T.J., Jr., Longabaugh, R., and Rossi, J. Effects of joint hospital admissions and couples treatment for hospitalized alcoholics: A pilot study. *Addictive Behaviors* 4:1244-1250, 1979.

Metzger, O.S., Cornish, J., Woody, G.E., Mclellan, A.T., Oruley, P., and O'Brien, C.P. Naltrexone in federal probationers. In: Harrris, L.S. (Ed.) *Problems of Drug Dependence* 1989. NIDA Research Monograph 95. Rockville, MO: National Institute on Drug Abuse, 1990. pp. 465-466.

Miller, P.M. A behavioral intervention program for chronic public drunkenness offenders. *Archives of General Psychiatry* 32:915-918, 1975.

Miller, W.R. The effectiveness of treatment for substance abuse. *Journal of Substance Abuse Treatment* 9:93-102, 1992.

Miller, W.R., and Baca, L.M. Two-year follow-up of bibliotherapy and therapist-directed controlled drinking training for problem drinkers. *Behavior Therapy* 14:441-448, 1983.

Miller, W.R., Benefield, R.G., and Tonigan, J.S. Enhancing motivation for change in problem drinking: A controlled comparison of two therapist styles. *Journal of Consulting and Clinical* Psychology 61:455-461, 1993.

Miller, W.R., Brown, J.M., Simpson, T.L., Handmaker, N.S., Bien, T.H., Luckie, L.F., Montgomery, H.A., Hester, R.K., Tonigan, J.S. What works? A methodological analysis of the alcohol treatment outcome literature. In: Hester, R.K., and Miller, W.R. (Eds.) *Handbook of Alcoholism Treatment Approaches* Second Edition. New York: Allyn & Bacon, 1994.

Miller, W.R. and Hester, R.K. Treating problem drinkers: Modern approaches. In: Miller, W.R. (Ed.) *The Addictive Behaviors: Treatment of Alcoholism, Drug Abuse, Smoking, and Obesity.* Oxford: Pergamon Press, 1980. pp 111-141.

Miller, W.R., and Hester, R.K. The effectiveness of alcoholism treatment: What research reveals. In W.R. Miller and N. Heather (Eds.) The *Addictive Behaviors: Processes of Change. New* York: Plenum Press, 1986.

Miller, W.R., and Munoz, R.F. *How to Control your Drinking.* Albuquerque, NM: University of New Mexico Press, 1982.

Miller, W.R., and Sanchez, V.C. Motivating young adults for treatment and life-style change. In: Howard, G. (Ed.) *Issues in Alcohol Use and Misuse by young Adults.* Notre Dame, IN: University of Notre Dame Press, 1993.

Miller, W.R., and Taylor, C.A. Relative effectiveness of bibliotherapy, individual and group self-control training in the treatment of problem drinkers. *Addictive Behaviors* 5:13-24, 1980.

Miller, W.R., Taylor, C.A., and West, J.C. Focused versus broad spectrum behavior therapy for problem drinkers. *Journal of Consulting and Clinical Psychology* 48:590-601, 1980.

Monti, P.M., Abrams, D.B., Binkoff, J.A., Zwick, W.R., Liepman, M.R., Nirenberg, T.D., and Rohsenow, D.J. Communication skills training, communication skills training with family, and cognitive behavioral mood management training for alcoholics. *Journal of Studies on Alcohol* 51:263-270, 1990.

Mosher, V., Davis, J., Mulligan, D., and Iber, F.L. Comparison of outcome in a 9-day and 30-day alcoholism treatment program. *Journal of Studies on Alcohol* 36:1277-1281, *1975.*

Nigam, A.K., Ray, R., and Tripathi, B.M. Buprenorphine in opiate withdrawal: a comparison with clonidine. *Journal of Substance Abuse Treatment 10:391-394, 1993.*

Noel N.E., McCrady, B.S., Stout, R.L., and Fisher-Nelson, H. Predictors of attrition from an outpatient alcoholism treatment program for couples. *Journal of Studies on Alcohol* 48:229-235, *1987.*

Nurco, D.N., Shaffer, J.W., Hanlon, T.E., Kinlock, T.W., Duszynski, K.R., and Stephenson, P. Relationships between client/counselor congruence and treatment outcome among narcotic addicts. *Comprehensive Psychiatry* 29(1):48-54, 1988.

O'Donnell, J.A. *Narcotic Addicts in Kentucky.* Washington, DC: U.S. Government Printing Office, 1969.

Oei, T.P.S., and Jackson, P. Long-term effects of group and individual social skills training with alcoholics. *Addictive Behaviors 5:* 129-l 36, 1980.

Oei, T.P.S., and Jackson, P.R. Social skills and cognitive behavioral approaches to the treatment of problem drinking. *Journal of Studies on Alcohol* 43:532-547, 1982.

O'Farrell, T.J., Choquette, K.A., Cutter, H.S.G., Brown, E.D., and McCourt, W.F. Behavioral marital therapy with and without additional relapse prevention sessions for alcoholics and their wives. *Journal of Studies on Alcohol* 54:652-666, 1993.

O'Farrell, T.J., Cutter, H.S.G., and Floyd, F.J. Evaluating behavioral marital therapy for male alcoholics: Effects on marital adjustment and communication before to after treatment. *Behavior Therapy* 16:147-167, *1985.*

O'Farrell, T.J., Cutter, H.S.G., Choquette, K.A., Floyd, F.J., and Bayog, R.D. Behavioral marital therapy for male alcoholics: Marital and drinking adjustment during the two years after treatment. *Behavior Therapy* 23(4):529-549, 1992.

O'Malley, S.S., Jaffe, A.J., Change, G., Schottenfeld, R.S., Meyer, R.E., and Rounsaville, B. Naltrexone and coping skills therapy for alcohol dependence: A controlled study. *Archives of Genera/ Psychiatry* 49:881-887, 1992.

Orford, I., Oppenheimer, E., and Edwards, G. Abstinence or control: The outcome for excessive drinkers two years after consultation. *Behavior, Research, and Therapy* 14:409-418, 1976.

Page, R.D., and Schaub, L.H. Efficacy of three- versus five-week alcohol treatment program. *International Journal of the Addictions* 14:697-714, 1979.

Persson, J., and Magnusson, P.H. Early intervention in patients with excessive consumption of alcohol: A controlled study. *Alcohol* 6:403-408, 1989.

Pettinati, H.M., Sugerman, A.A., DiDonato, N., and Maurer, H.S. The natural history of alcoholism over four years. *Journal of Studies on Alcohol* 43:201-215, 1982.

Powers, K.I., and M.D. Anglin. Cumulative versus stabilizing effects of methadone maintenance. *Evaluation Review* 17(3):243-270, 1993.

Rawson, R.A., Obert, J.L., and McCann, M.J. The treatment of cocaine addiction and alcoholism at Sierra Tucson: Treatment outcome issues. Unpublished manuscript, 1990.

Resnick, R.B., Galanter, M., Pycha, C., and Cohen, A. Buprenorphine: An alternative to methadone for heroin dependence treatment. *Pharmaculugical Bulletin* 28:109-113, 1992.

Rogers, C.R. *Client-Centered Therapy: Its Practice, Implications, and Theory.* Boston, MA: Houghton Mifflin, 1951.

Rohsenow, D.J., Smith, R.E., and Johnson, S. Stress management training as a prevention program for heavy social drinkers: Cognitive affect, drinking, and individual differences. *Addictive Behaviors* 10:45-54, 1985.

Roman, P.M., and Blum, T.C. Employee assistance programs. In: Galanter, M., and Kleber, H.D. (Eds.) *The American Psychiatric Press Textbuuk of Substance Abuse Treatment.* Washington, DC: American Psychiatric Press, Inc., 1994. pp. 369.383.

Rounsaville, B.J., and Carroll, K.M. Individual psychotherapy for drug abusers. In: Lowinson, J.H., Ruiz, P., and Millman, R.B. *Substance Abuse: A Comprehensive Textbook,* Second Edition. Baltimore, MD: Williams & Wilkins, 1992. pp. 496-507.

Rounsaville, B.J., Dolinsky, Z.S., Babor, T.F., and Meyer, R.E. Psychopathology as a predictor of treatment outcome in alcoholics. *Archives of Genera/ Psychiatry* 44:505-513, 1987.

Rounsaville, B.J., Tierney, T., Crits-Christoph K., Weissman, M.M., and Kleber, H.D. Predictors of outcome in treatment of opiate addicts. *Comprehensive Psychiatry* 23:462-478, *1982.*

Rouse, B. *Drug Abuse Among Racial/Ethnic Minorities: A Special Report.* Rockville, MD: National Institute on Drug Abuse, 1989.

Rush, T.V. Predicting treatment outcomes for juvenile and young-adult clients in the Pennsylvania substance-abuse system. In: Beschner, G.M. (Ed.) *youth.* Lexington, MA: Lexington Books, 1979.

Sannibale, C. The differential effect of a set of brief interventions on the functioning of a group of "early-stage" problem drinkers. *Australian Drug and Alcohol Review* 7:147-155, 1988.

Savage, L.J., and Simpson, D.D. Post-treatment outcomes of sex and ethnic groups treated in methadone maintenance during 1969-l 972. *Journal of Psychoactive Drugs* 12:55-64, 1980.

Sechrest, L., and Hannah, M. The critical importance of nonexperimental data. In: Sechrest, L., Perrin, E., and Bunker, J. *Research Methodology: Strengthening Causal interpretations of Nonexperimental Data.* Rockville, MD: Agency for Health Care Policy and Research, 1990.

Sells, S.B. (Ed.) *Studies of the Effectiveness of Treatments for Drug Abuse. Volume 1: Evaluation of Treatments.* Cambridge, MA: Ballinger Publishing Company, 1974a.

Sells, S.B. (Ed.) *Studies of the Effectiveness of Treatments for Drug Abuse. Volume 2: Research on Patients, Treatments, and Outcomes.* Cambridge, MA: Ballinger Publishing Company, 1974b.

Sells, S.B., and Simpson, D.W. *The Effectiveness of Drug Abuse Treatment Volume III: Further Studies of Drug Users, Treatment and Assessment of Outcomes During Treatment in the DARP.* Cambridge, MA: Ballinger Publishing, 1976a.

Sells, S.B., and Simpson, D.W. *The Effectiveness of Drug Abuse Treatment Volume IV: Evaluation of Treatment Outcomes for 1971-1972 DARP Admission Cohort.* Cambridge, MA: Ballinger Publishing, 1976b.

Sells, S.B., and Simpson, D.W. *The Effectiveness of Drug Abuse Treatment Volume V: Evaluation of Treatment Outcomes for 1972-1973 DARP Admission Cohort.* Cambridge, MA: Ballinger Publishing, 1976c.

Sheeren, M. The relationship between relapse and involvement in Alcoholics Anonymous. *Journal of Studies on Alcohol 49:* 104-106, 1988.

Shufman, E.N., Porat, S., Witztum, E., and Gandacu, D. The efficacy of naltrexone in preventing reabuse of heroin after detoxification. *Biological Psychiatry* 15:935-45, *1994.*

Simpson, D.D. Treatment for drug abuse: Followup outcomes and length of time spent. *Archives of General Psychiatry* 38:875-889, 1981.

Simpson, D.D. National treatment system evaluation based on the Drug Abuse Reporting Program (DARP) follow-up research. In: Tims, F.M., and Ludford, J.P. (Eds.) *Drug Abuse Treatment Evaluation: Strategies, Process, and Prospects.* NIDA Research Monograph 51. Rockville, MD: National Institute on Drug Abuse, 1984. pp. 29-41.

Simpson, D.D., and Friend, J. Legal status and long-term outcomes for addicts in the DARP follow-up project. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Compulsory Treatment of Drug Abuse: Research and Clinical Practice.* NIDA Research Monograph 86. Rockville, MD: National Institute on Drug Abuse, 1988. pp. 81-98.

Simpson, D.D., G.W. Joe, G. Rowan-Szal, and J. Greener. Client engagement and change during drug abuse treatment. *Journal of Substance Abuse,* in press.

Simpson, D.D., and Sells, S.B. Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Advances in Alcohol and Substance Abuse* 2(1):7-29, 1982.

Simpson, D.D., and Sells, S.B. (Eds.). *Opioid Addiction and Treatment: A 12-Year Followup.* Malabar, FL: Krieger Publishing, 1990.

Simpson, D.D., Savage, L.J., and Lloyd, M.R. Follow-up evaluation of treatment of drug abuse during 1969 to 1972. *Archives of General Psychiatry* 36:772-278, 1979.

Simpson, D.D., Joe, G.W., Lehman, W.E.K., and Sells, S.B. Addiction careers: Etiology, treatment, and 12-year follow-up outcomes. *Journal of Drug* Issues 16(1):107-121, 1986.

Smart, R.G., and Gray, G. Minimal, moderate, and long-term treatment for alcoholism. *British Journal of Addiction* 73:35-38, 1978.

Smart, R.G., Finley, J., and Funston, R. The effectiveness of post-detoxification referrals: Effects on later detoxification admissions, drunkenness and criminality. Drug *and Alcohol Dependence* 2:149-155, 1977.

Smith, D., and Mahoney, J. McDonnell Douglas Corporation Employee Assistance Program Financial Offset Study 1985-1988. Westport, CT: McDonnell Douglas Corporation and Alexander & Alexander Consulting Group, 1989.

Stein, L.I., Newton, J.R., and Bowman, R.S. Duration of hospitalization for alcoholism. *Archives of General Psychiatry* 32:247-252, 1975.

Stevens, S., Arbiter, N., and Glider, P. Women residents: Expanding their role to increase treatment effectiveness in substance abuse programs. *The International Journal of the Addictions* 24:425-434, 1989.

Stinson, D.J., Smith, W.G., Amidjaya, I., and Kaplan, J.M. Systems of care and treatment outcomes for alcoholic patients. Archives of *Genera/ Psychiatry* 36:535-539, 1979.

Strain, E.C., Stitzer, M.L., Liebson, LA., and Bigelow, G.E. Comparison of buprenorphine and methadone in the treatment of opioid dependence. *American Journal of Psychiatry* 151:1025-l 030, 1994a.

Strain, E.C., Stitzer, M.L., Liebson, I.A., and Bigelow, G.E. Buprenorphine versus methadone in the treatment of opioid-dependent cocaine users. *Psychopharmacology* 116:401-406, 1994b.

System Sciences, Inc. *final Report-Evaluation of* ***TASC,*** *Phase II.* Bethesda, MD: Law Enforcement Assistance Administration, 1978.

Tennant, F.S., Rawson, R.A., Pumphrey, F., and Secof, R. Clinical experiences with 959 opioid-dependent patients treated with levo-alpha acetylmethadol (LAAM). *Journal of Substance Abuse Treatment* 3: 195-202, 1986.

Thurstin, A.H., Alfano, A.M., and Nerviano, V.J. The efficacy of AA attendance for aftercare of inpatient alcoholics: Some follow-up data. *The International Journal of the Addictions* 22:1083-l 090, 1987.

Tilly, J. O'Brien, C.P. McLellan, A.T., Woody, G.E., Metzger, D.S., and Cornish, J. Naltrexone in the treatment of federal probationers. In: Harris, L. (Ed.) *Problems of Drug Dependence 1991.* NIDA Research Monograph 119. Rockville, MD: National Institute on Drug Abuse, 1992. pp. 458.

Trice, H.M., and Beyer, J.M. Work-related outcomes of the constructive-confrontation strategy in a job-based alcoholism program. *Journal of Studies on Alcohol* 45:393-404, 1984.

Truman, B., and J.S. Brown. HIV infection among intravenous drug users (IVDU) in NYC. Fifth International Conference on AIDS. Montreal, June 1989.

Tyon, L. *Baseline Management and Assessment Data Project: final Report.* Portland, OR: Bureau of Justice Assistance, 1988.

Valle, SK. Interpersonal functioning of alcoholism counselors and treatment outcome. *Juurnal of Studies on Alcohol* 42:783-790, 1981.

Volpiceili, J.S., Alterman, A.I., Hayashida, M., and O'Brien, C.P. Naltrexone in the treatment of alcohol dependence. *Archives of General Psychiatry* 49:876-880, 1992.

Walker, R.D., Donovan, D.M., Kivlahan, D.R., and O'Leary, M.R. Length of stay, neuropsychological performance, and aftercare: Influences on alcohol treatment outcome. *Journal of Consulting and Clinical Psychulugy 5* 1:900-911, 1983.

Wallace, P., Cutler, S., and Haines, A. Randomized controlled trial of general practitioner intervention in patients with excessive alcohol consumption. *British Medical Journal* 297:663-668, 1988.

Walsh, D.C., Hingson, R.W., Merrigan, D.M., Levenson, S.M., Cupples, L.A., Heeren, T., Coffman, G.A., Becker, C.A., Barker, T.A., Hamilton, S.K., McGuire, T.G., and Kelly, C.A. A randomized trial of

treatment options for alcohol-abusing workers. New *England Journal of Medicine* 325:775-782, 1991.

Wexler, H.K, Falkin, G.P., Lipton, D.S., and Rosenblum, A.B. Outcome evaluation of a prison therapeutic community for substance abuse treatment. In: Leukefeld, C.G., and Tims, F.M. (Eds.) *Drug Abuse Treatment in Prisons and Jails.* NIDA Research Monograph 118. Rockville, MD: National Institute on Drug Abuse, 1992. pp. 156-175.

Whyte, C.R., and O'Brien, P.M. Disulfiram implant: A controlled trial. *British Journal of Psychiatry 124:42-44,* 1974.

Willems, P.J., Letemendia, J.J., and Arroyave, F. A two-year follow-up study comparing short with long stay in-patient treatment of alcoholics. *British Journal of Psychiatry* 122:637-648, 1973.

Wilson, A., Davidson, W.J., and Blanchard, R. Disulfiram implantation: A trial using placebo implants and two types of controls. *Journal of Studies on Alcohol* 41:429-436, 1980.

Wilson, A., Davidson, W.J., Blanchard, R., and White, J. Disulfiram implantation: A placebo-controlled trial with two-year follow-up. *Journal of Studies on Alcohol* 39:809-819, 1978.

Wish, E., and Gropper, B. Drug testing by the criminal justice system: Methods and applications. In: Tonry, M., and Wilson, J. (Eds). *Drugs and Crime.* Chicago: University of Chicago Press, 1990. pp. 321-391.

Woody, G.E., Luborsky, L., McLellan, A.T., O'Brien, C.P., Beck, A.T., Blaine, J., Herman, I., and Hole, A. Psychotherapy for opiate addicts: Does it help? *Archives of Genera/ Psychiatry* 40:639-645, 1983.

Woody, G.E., McLellan, A.T., Luborsky, L., and O'Brien, C.P. Sociopathy and psychotherapy outcome. *Archives of General Psychiatry* 42:1081-1086, 1985.

Woody, G.E., McLellan, A.T., Luborsky, L., O'Brien, C.P., Blaine, J., Fox, S., Herman, I., and Beck, A.T. Severity of psychiatric symptoms as a prediction of benefits from psychotherapy: The Veterans Administration-Penn study. *American Journal of Psychiatry* 141:1172-1177, 1984.

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